

mitsubishi

GOT-A900 Series

User's Manual (Connection System Manual)



Graphic Operation Terminal
900
series



• SAFETY INSTRUCTIONS •

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.

The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.

In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".




DANGER

Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



CAUTION

Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the  CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Design Instructions]



DANGER

- Some failures of the GOT main unit, communication module, communication board or cable may keep the outputs on or off.
An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.
Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative.
For bus connection : The CPU becomes faulty and the GOT inoperative.
For other than bus connection : The GOT becomes inoperative.
A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur.
Not doing so can cause an accident due to false output or malfunction.



CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring.
Run the above cables separately from such wiring and keep them a minimum of 100mm apart.
Not doing so noise can cause a malfunction.

[Mounting Instructions]

DANGER

- Before installing or removing the GOT main unit to or from an enclosure, always switch off the GOT power externally in all phases.
Not doing so can cause a module failure or malfunction.
- Before loading or unloading the communication board, communication module or memory board to or from the GOT, always switch off the GOT power externally in all phases.
Not doing so can cause a module failure or malfunction.

CAUTION

- The GOT should be used in the environment given in the general specifications of the GOT user's manual.
Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When mounting the GOT main unit to an enclosure, tighten the mounting screws in the specified torque range.
Undertightening can cause a drop, short circuit or malfunction.
Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or module.
- When loading the communication board or communication module to the GOT main unit, fit it to the connection interface of the GOT and tighten the mounting screws in the specified torque range.
Undertightening can cause a drop, failure or malfunction.
Overtightening can cause a drop, failure or malfunction due to the damage of the screws or module.
- When loading the memory board into the GOT main unit, load it into its corresponding GOT slot and tighten the mounting screws in the specified torque range.
Undertightening can cause a malfunction due to a contact fault.
Overtightening can cause a malfunction due to the damage of the screws or module.
- When loading the PC card into the GOT main unit, insert and push it into its corresponding GOT slot until the PC card eject button comes up.
Not doing so can cause a malfunction due to a contact fault.
- Before loading or unloading the PC card to or from the GOT, set the memory card access switch to the OFF position.
Not doing so can cause the PC card data to be corrupted.

[Wiring Instructions]

DANGER

- Before starting wiring, always switch off the GOT power externally in all phases.
Not doing so may cause an electric shock, product damage or malfunction.

CAUTION

- Always earth the FG, LG and earth terminals of the GOT power supply section to the protective earth conductor.
Not doing so may cause an electric shock or malfunction.
- Correctly wire the power supply module on the GOT after confirming the rated voltage and terminal arrangement of the product.
Not doing so can cause a fire or failure.
- Tighten the terminal screws of the GOT power supply section in the specified torque range.
Undertightening can cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the module.
Not doing so can cause a fire, failure or malfunction.
- Plug the bus connection cable by inserting it into the connector of the connected module until it "clicks".
After plugging, check that it has been inserted snugly.
Not doing so can cause a malfunction due to a contact fault.
- Plug the communication cable into the connector of the connected module and tighten the mounting and terminal screws in the specified torque range.
Undertightening can cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.

[Test Operation Instructions]

DANGER

- Before performing test operation (bit device on/off, word device's present value changing, timer/counter's set value and present value changing, buffer memory's present value changing) for a user-created monitor screen, system monitoring, special module monitoring or ladder monitoring, read the manual carefully to fully understand how to operate the equipment.
During test operation, never change the data of the devices which are used to perform significant operation for the system.
False output or malfunction can cause an accident.

[Startup/Maintenance Instructions]

DANGER

- When power is on, do not touch the terminals.
Doing so can cause an electric shock or malfunction.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
Not switching the power off in all phases can cause a module failure or malfunction.
Undertightening can cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to the damage of the screws or module.

CAUTION

- Do not disassemble or modify the module.
Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the module directly.
Doing so can cause a module malfunction or failure.
- The cables connected to the module must be run in ducts or clamped.
Not doing so can cause the module or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the module, do not hold and pull the cable portion.
Doing so can cause the module or cable to be damaged or can cause a malfunction due to a cable connection fault.

[Disposal Instructions]

CAUTION

- When disposing of the product, handle it as industrial waste.

Revisions

*The manual number is given on the bottom left of the back cover.

Print Date	*Manual Number	Revision
Nov,1998	SH(NA)-4015-A	First edition
Jan,1999	SH(NA)-4015-B	<div>Partial correction</div> <p>Section 3.1, Section 3.2, Section 3.3</p> <div>Partial addition</div> <p>Section 1.1, Section 4.1, Section 4.2, Section 5.1, Section 6.1, Section 7.1, Section 8.1, Section 10.1, Section 11.1, Section 12.1, Section 13.1, Section 14.1, Section 15.1, Section 15.2</p> <div>Addition</div> <p>Section 15.3, Index</p>
Mar,1999	SH(NA)-4015-C	<div>Partial correction</div> <p>Section 2.1, Section 2.4</p>

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

INTRODUCTION

Thank you for choosing the Mitsubishi Graphic Operation Terminal.

Before using the equipment, please read this manual carefully to use the equipment to its optimum.

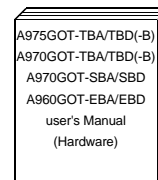
Please forward a copy of this manual to the end user.

Whereabouts and Usage of This Manual

The manuals relating to the GOT 900 series are available in the following types. The manuals are classified according to their purposes. Please read the proper manuals to understand the handling, operation and functions of the GOT unit and SW1D5C-GOTRE-PACK.

[A975GOT-TBA/TBD(-B), A970GOT-TBA/TBD(-B), A970GOT-SBA/SBD, A960GOT-EBA/EBD User's Manual(Hardware)]

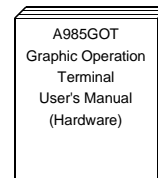
- To know the features of the A975GOT/A970GOT/A960GOT unit.
- To confirm the specifications of the A975GOT/A970GOT/A960GOT unit.
- To know the part names of the A975GOT/A970GOT/A960GOT unit.
- To know how to install and wire the A975GOT/A970GOT/A960GOT unit.
- To know the outline dimension drawing of the A975GOT/A970GOT/A960GOT unit.



Found in the packing of the A975GOT/A970GOT/A960GOT unit.

[A985GOT Graphic Operation Terminal User's Manual(Hardware)]

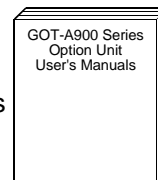
- To know the features of the A985GOT unit.
- To confirm the specifications of the A985GOT unit.
- To know the part names of the A985GOT unit.
- To know how to install and wire the A985GOT unit.
- To know the outline dimension drawing of the A985GOT unit.



Found in the packing of the A985GOT unit.

[GOT-A900 Series Option Unit User's Manuals]

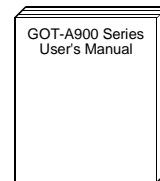
- To know the features of the corresponding GOT-A900 series option unit.
- To confirm the specifications of the corresponding GOT-A900 series option unit.
- To know the part names of the corresponding GOT-A900 series option unit.
- To know the outline dimension drawing of the corresponding GOT-A900 series option unit.



Found in the packing of the corresponding GOT-A900 series option unit.

[GOT-A900 Series User's Manual]

- To know the features of the GOT-A900 series unit.
- To confirm the component devices of the GOT-A900 series.
- To confirm the specifications of the GOT-A900 series unit.
- To know the part names of the GOT-A900 series unit.
- To fit various units to the GOT-A900 series.
- To know how to install and wire the GOT-A900 series unit.
- To know how to maintain and inspect the GOT-A900 series.
- To confirm the error codes of the GOT-A900 series.
- To know the outline dimension drawing of the GOT-A900 series unit.

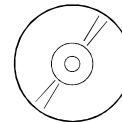


Available as an option.

[GOT-A900 Series User's Manual(Connection System Manual)]

- To know the connection forms available for the GOT-A900 series.
- To confirm the specifications of each connection form.
- To know the system configuration of each connection form.
- To know how to set the unit used.
- To confirm the connection diagrams of the connection cables.

SW1D5C-GOTRE-MANU
Online manual-Tutorial

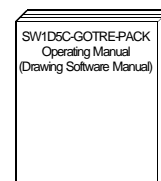


Contained in the
SW1D5C-GOTRE-MANU
Online manual-Tutorial as
PDF data.

* The paper manual is also available
as an option.

[SW1D5C-GOTRE-PACK Operating Manual (Drawing Software Manual)]

- To install the software into the personal computer.
- To start each software.
- To know how to connect the personal computer and GOT.
- To know the screen makeup of the software.
- To grasp the outline of various monitoring functions.
- To know the procedure of displaying the monitor screen.
- To know how to use the help function.

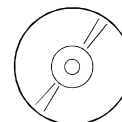


Found in the packing
of SW1D5C-GOTRE-PACK.

[GOT Operations Guide]

- To learn the sequence of operations by creating a simple screen
using the drawing software.

SW1D5C-GOTRE-MANU
Online manual-Tutorial

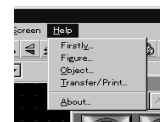


Contained in the
SW1D5C-GOTRE-MANU
Online manual-Tutorial.

[SW1D5C-GOTRE-PACK Help Functions]

- To confirm how to operate each software of SW1D5C-GOTRE-PACK.
- To confirm how to set various object functions.

SW1D5C-GOTRE-PACK

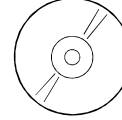


Incorporated in
each software of
SW1D5C-GOTRE-PACK

[GOT-A900 Series Operating Manual (Extended • Option Functions Manual)]

- To perform the utility function.
- To perform the system monitoring function.
- To perform the ladder monitoring function.
- To perform the special function unit monitoring function.
- To perform the network monitoring function.

SW1D5C-GOTRE-MANU
Online manual-Tutorial



Contained in the
SW1D5C-GOTRE-MANU
Online manual-Tutorial as
PDF data.

* The paper manual is also available
as an option.

Abbreviations, generic terms and special terms used in this manual

Abbreviations, generic terms and special terms used in this manual are described as follows:

Abbreviations, generic terms and special terms	Description
A985GOT	Generic term of A985GOT-TBA and A985GOT-TBD
A975GOT	Generic term of A975GOT-TBA, A975GOT-TBD, A975GOT-TBA-B and A975GOT-TBD-
A970GOT	Generic term of A970GOT-TBA, A970GOT-TBD, A970GOT-SBA, A970GOT-SBD, A970GOT-TBA-B and A970GOT-TBD-B
A960GOT	Generic term of A960GOT-EBA and A960GOT-EBD
GOT	Generic term of A985GOT, A975GOT, A970GOT and A960GOT
Memory	Abbreviation of memory (flash memory) in the GOT
OS	Abbreviation of GOT system software
A9GT-BUSS	Abbreviation of A9GT-BUSS type bus connection board
A9GT-BUS2S	Abbreviation of A9GT-BUS2S type multi-drop bus connection board
Bus connection board	Generic term of A9GT-BUSS and A9GT-BUS2S
A9GT-RS4	Abbreviation of A9GT-RS4 type serial communication board
A9GT-RS2	Abbreviation of A9GT-RS2 type serial communication board
Serial communication board	Generic term of A9GT-RS4 and A9GT-RS2
Communication board	Generic term of bus connection board and serial communication board
A7GT-J71AP23	Abbreviation of A7GT-J71AP23 type data link unit
A7GT-J71AR23	Abbreviation of A7GT-J71AR23 type data link unit
A7GT-J71AT23B	Abbreviation of A7GT-J71AT23B type data link unit
Data link unit	Generic term of A7GT-J71AP23, A7GT-J71AR23 and A7GT-J71AT23B
A7GT-J71LP23	Abbreviation of A7GT-J71LP23 type network unit
A7GT-J71BR13	Abbreviation of A7GT-J71BR13 type network unit
Network unit	Generic term of A7GT-J71LP23 and A7GT-J71BR13
A8GT-J61BT13	Abbreviation of A8GT-J61B13 CC-Link communication unit
A8GT-J61BT15	Abbreviation of A8GT-J61B15 CC-Link communication unit
CC-Link communication unit	Generic term of A8GT-J61BT13 and A8GT-J61BT15
Communication unit	Generic term of data link unit, network unit and CC-Link communication unit
Protection sheet	Abbreviation of A9GT-70PSCL, A9GT-70PSC, A9GT-60PSCL and A9GT-60PSC type transparent protection sheets
Backlight	Abbreviation of A9GT-70LTT and A9GT-70LTS type backlights
Debug stand	Abbreviation of A9GT-70STAND type debug stand
PC card (memory card)	Abbreviation of PC card with PCMCIA Ver.2.1
Memory board	Abbreviation of A9GT-FNB, A9GT-FNB1M, A9GT-FNB2M, A9GT-FNB4M type option function memory board
External I/O unit	Abbreviation of A9GT-70KBF type external I/O interface unit

Abbreviations, generic terms and special terms	Description
QnACPU	Generic term of Q2ACPU, Q2ACPU-S1, Q3ACPU and Q4ACPU CPU units
AnUCPU	Generic term of A2UCPU, A2UCPU-S1, A3UCPU and A4UCPU CPU units
AnACPU	Generic term of A2ACPU, A2ACPU-S1 and A3ACPU CPU units
AnNCPU	Generic term of A1NCPU, A2NCPU, A2NCPU-S1 and A3NCPU CPU units
Q2ASCPU	Generic term of Q2ASCPU and Q2ASCPU-S1 CPU units
Q2ASHCPU	Generic term of Q2ASHCPU and Q2ASHCPU-S1 CPU units
A2US(H)CPU	Generic term of A2USCPU, A2USCPU-S1 and A2USHCPU-S1 CPU units
AnS(H)CPU	Generic term of A1SCPU, A1SHCPU, A2SCPU and A2SHCPU CPU units
A1SJ(H)CPU	Generic term of A1SJCPU-S3 and A1SJHCPU CPU units
FX0 series	Generic term of FX0 series CPU unit
FX0N series	Generic term of FX0N series CPU unit
FX0S series	Generic term of FX0S series CPU unit
FX1 series	Generic term of FX1 series CPU unit
FX2 series	Generic term of FX2 series CPU unit
FX2C series	Generic term of FX2C series CPU unit
FX2N series	Generic term of FX2N series CPU unit
FX2NC series	Generic term of FX2NC series CPU unit
Drawing software	Abbreviation of image creation software GOT Screen Designer for GOT900
Data conversion software	Abbreviation of data conversion software GOT Converter for GOT900
Debug software	Abbreviation of debugging software GOT Debugger
Object	Setting data for dynamic image
Windows95	Abbreviation of Microsoft Windows95 ^{*1}
Windows NT4.0	Abbreviation of Microsoft Windows NT Workstation 4.0 ^{*1}
Windows	Generic term of Windows95 and Windows NT4.0
Personal Computer	Windows compatible Personal Computer that can install SW1D5C-GOTRE-PACK

^{*1} Microsoft Windows95 and Microsoft Windows NT Workstation 4.0 are the trademarks of Microsoft Corporation, U.S.

Manual

The following manuals related to this product are available. Obtain the manuals as required the according to this table.

- Related manual

Manual name	Manual number (Model code)
A985GOT Graphic Operation Terminal User's Manual (Hardware) Explains the specifications, part names, and grounding of the A985GOT. (Found in the packing of the A985GOT unit)	IB-80019 (13JQ15)
A975GOT-TBA/TBD(-B), A970GOT-TBA/TBD(-B), A970GOT-SBA/SBD, A960GOT-EBA/EBD User's Manual(Hardware) Explains the specifications, part names, and grounding of the A975GOT/A970GOT/A960GOT. (Found in the packing of the A975GOT/A970GOT/A960GOT unit)	IB-80032 (13JN45)
GOT-A900 Series User's Manual Explains the specifications, general system configuration, component devices, part names, option unit loading methods, installation and wiring methods, maintenance and inspection methods, and error codes of the GOT-A900 series unit. (Available as option)	SH-4005 (13JL70)
GOT-A900 Series User's Manual (Connection System Manual) Gives the specifications, system configuration, setting method and connection diagram of each connection form available for the GOT-A900 series. (Available as option)	SH-4015 (13JL79)
GOT-A900 Series Operating Manual (Extended • Option Functions Manual) Provides the specifications of the utility, system monitoring, ladder monitoring, special function unit monitoring and network monitoring functions available for the GOT-A900 series and how to operate the dedicated monitor screen. (Available as option)	SH-4014 (13J945)
SW1D5C-GOTRE-PACK Operating Manual Deals with how to install and start the SW1D5C-GOTRE-PACK, its system configuration, the screen makeup of the software package, the general description of various monitoring functions, the procedure for displaying the monitor screen on the GOT, and how to use the help function. (Found in the packing of the SW1D5C-GOTRE-PACK)	IB-66885 (13J943)
A9GT-BUSS Type Bus Connection Board User's Manual Describes specifications, part names and installation of A9GT-BUSS. (with A9GT-BUSS)	IB-68953 (13JM87)
A9GT-BUS2S Type Multi-Drop Bus Connection Board User's Manual Describes specifications, part names and installation of A9GT-BUS2S. (with A9GT-BUS2S)	IB-68954 (13JM88)
A9GT-RS4 Type Serial Communication Board User's Manual Describes specifications, part names and installation of A9GT-RS4. (with A9GT-RS4)	IB-68955 (13JM89)
A9GT-RS2 Type Serial Communication Board User's Manual Describes specifications, part names and installation of A9GT-RS2. (with A9GT-RS2)	IB-68956 (13JM90)
A7GT-J71AP23/R23 Type Data Link Unit User's Manual Describes specifications, part names and installation of A7GT-J71AP23/R23. (with A7GT-J71AP23/R23)	IB-66438 (13JE26)
A7GT-J71AT23B Type Data Link Unit User's Manual Describes specifications, part names and installation of A7GT-J71AT23B. (with A7GT-J71AT23B)	IB-66439 (13JA81)
A7GT-J71LP23/BR13 Type Network Unit User's Manual Describes specifications, part names and installation of A7GT-J71LP23/BR13. (with A7GT-J71LP23/BR13)	IB-66558 (13JE94)

Manual name	Manual number (Model code)
A8GT-J61BT13 Type CC-Link Communication Unit User's Manual Describes specifications, part names and installation of A8GT-J61BT13. (with A8GT-J61BT13)	IB-66838 (13JL56)
A8GT-J61BT15 Type CC-Link Communication Unit User's Manual Describes specifications, part names and installation of A8GT-J61BT15. (with A8GT-J61BT15)	IB-66788 (13JL29)
A9GT-70LTT Type Back light Unit User's Manual Describes specifications, part names and installation of A9GT-70LTT. (with A9GT-70LTT)	IB-68982 (13JM97)
A9GT-70LTS Type Back light Unit User's Manual Describes specifications, part names and installation of A9GT-70LTS. (with A9GT-70LTS)	IB-68984 (13JM99)
A9GT-70LTTB Type Back light Unit User's Manual Describes specifications, part names and installation of A9GT-70LTTB. (with A9GT-70LTTB)	IB-80033 (13JQ25)
A9GT-80LTT Type Back light Unit User's Manual Describes specifications, part names and installation of A9GT-80LTT. (with A9GT-80LTT)	IB-80027 (13JQ21)
A9GT-70STAND User's Manual Describes specifications, part names and installation of A9GT-70STAND. (with A9GT-70STAND)	IB-68981 (13JM96)
A9GT-80STAND User's Manual Describes specifications, part names and installation of A9GT-80STAND. (with A9GT-80STAND)	IB-80028 (13JQ22)
Add-on memory board for A9GT-FNB, A9GT-FNB1M, A9GT-FNB2M and A9GT-FNB4M type option function Describes specifications, part names and installation of A9GT-FNB (M1/M2/M4). (with A9GT-FNB (M1/M2/M4))	IB-68975 (13JM91)
A9GT-70KBF Type External I/O Interface Unit User's Manual Describes specifications, system configurations, part names and installation/wiring methods of A9GT-70KBF. (with A9GT-70KBF)	IB-80018 (13JQ14)
A8GT-TK Type Numerical Keypad Panel User's Manual Describes specifications, part names and installation of A8GT-TK. (with A8GT-TK)	IB-66832 (13JL51)
A7GT-CNB type bus connector conversion box users manual Describes specifications, part names and installation of A7GT-CNB. (with A7GT-CNB)	BCN-P5138

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Chapter1 Overview

This manual describes the specifications, system configurations, setting method, connection cables and other information of each connection supported by the GOT.

1.1 Connection supported by GOT

(1) Bus connection

Bus connection is a way of using the extension connector of a base unit for connection of the GOT (connection by I/O bus) and this connection has the fastest response to a PLC CPU among the GOT's connections.

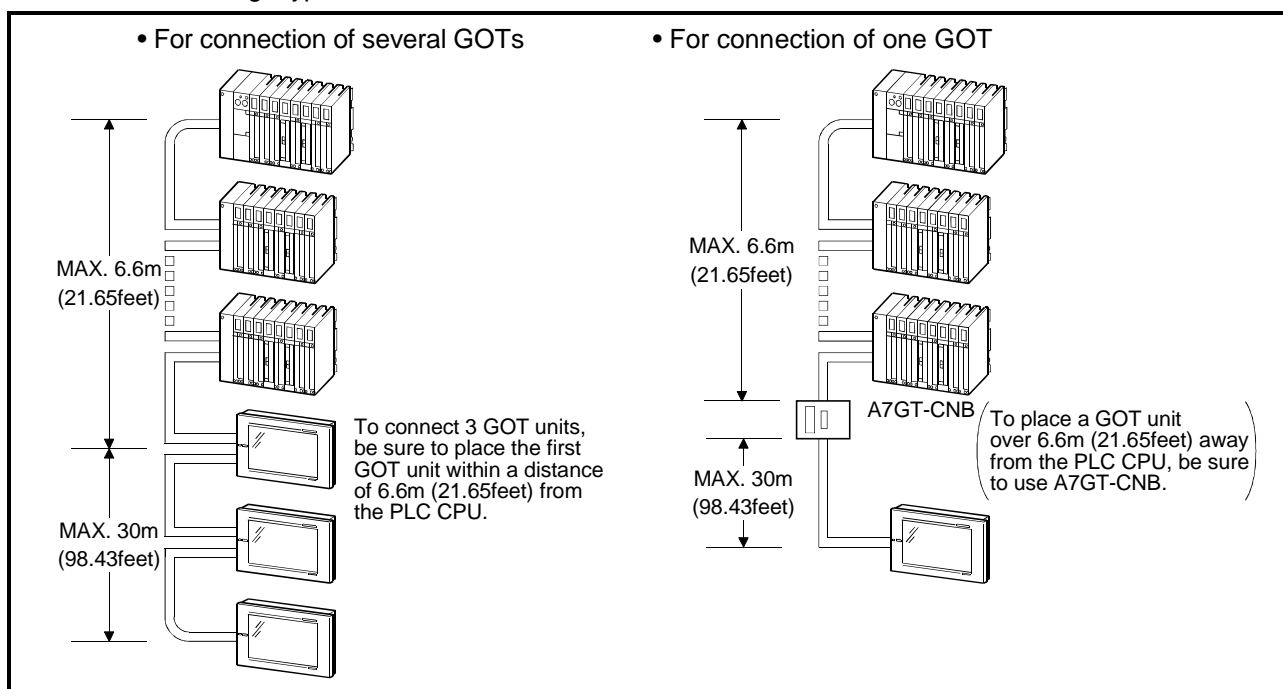
The GOT can be installed up to 36.6m away from a base unit for a large type PLC CPU to be connected to, or up to 35m away for a small type PLC CPU.

Also, up to three GOTs may be connected to a single PLC CPU.

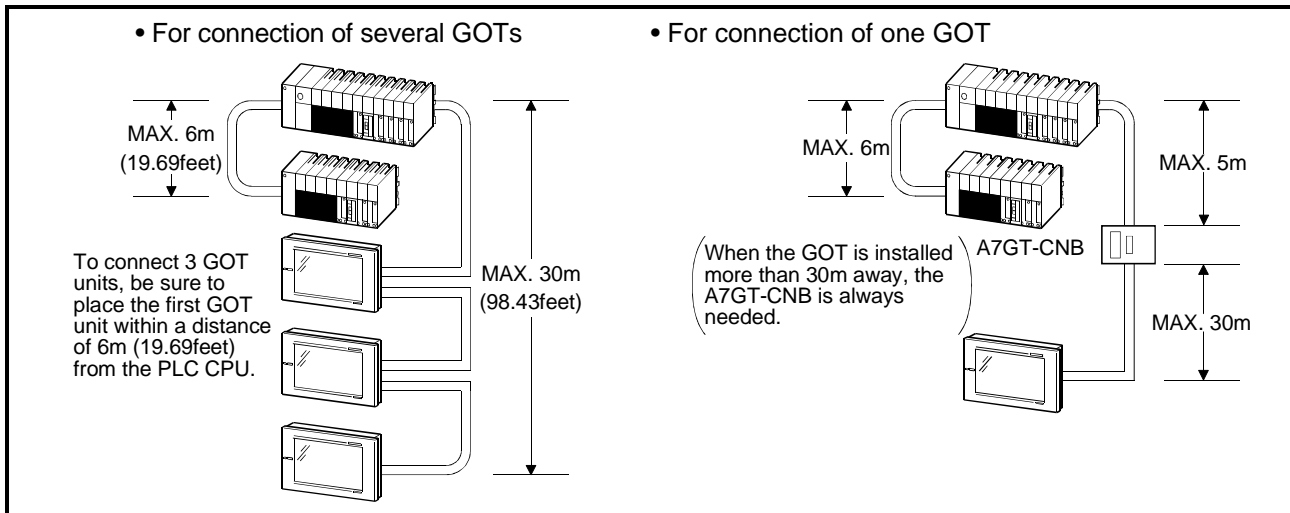
(Depending on the PLC CPU to be connected to, the number of GOTs may be up to two.)

Required interface unit ... A9GT-BUSS, A9GT-BUS2S

• Connection with large type PLC CPU



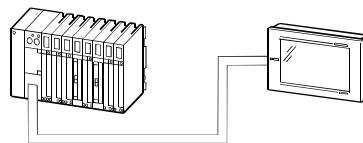
• Connection with small type PLC CPU



(2) Direct connection to CPU

You can connect the GOT with the MELSEC-A/QnA/FX PLC by an RS-422 cable and this is the most economical way of connection.

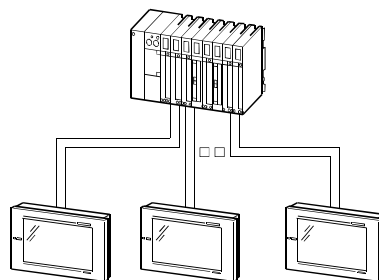
Required interface unit ... A9GT-RS4



(3) Computer link connection

Since the GOT can be connected with a computer link unit on a 1:1 basis, several GOTs can be connected.

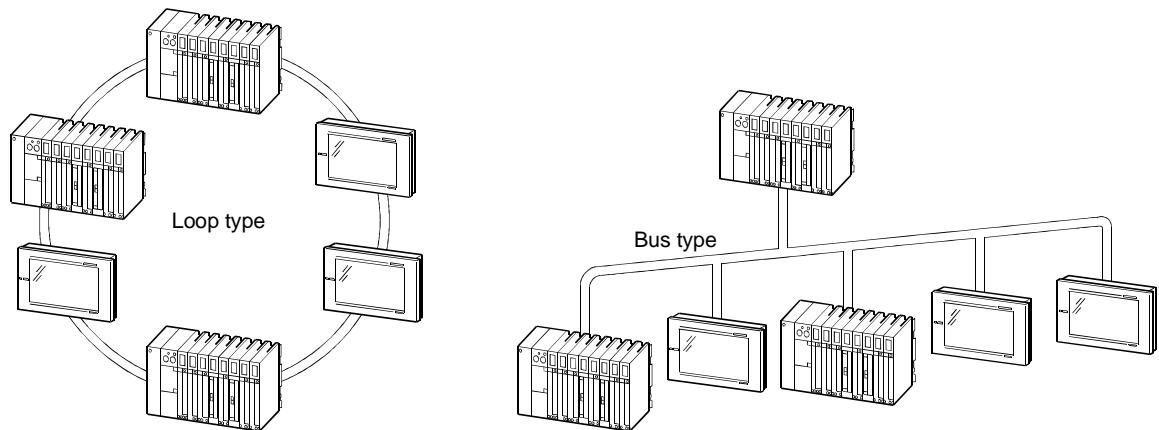
Required interface unit ... A9GT-RS4, A9GT-RS2



(4) MELSECNET connection

The GOT is used as a local station of the data link system or a normal station of the network system and allows remote control via network.

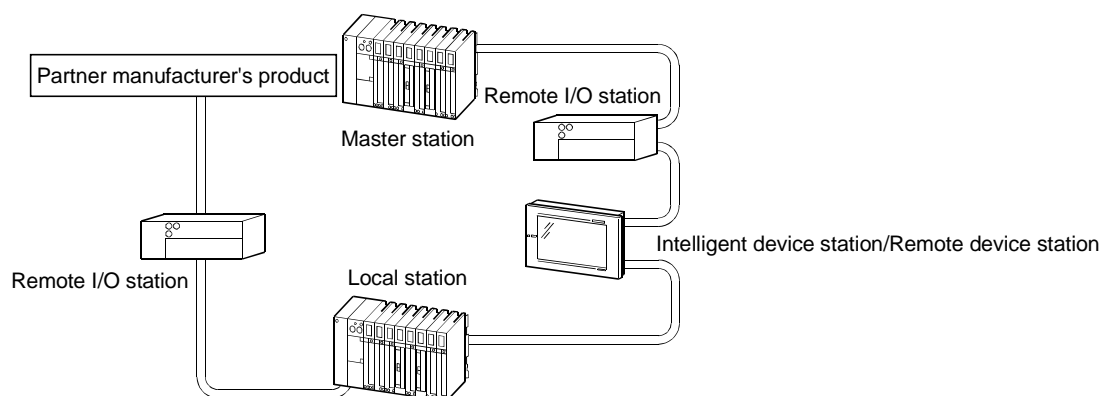
Required interface unit : A7GT-J71AP23, A7GT-J71AR23, A7GT-J71AT23B, A7GT-J71LP23, A7GT-J71BR13



(5) CC-Link connection

The GOT is used as an intelligent device station or a remote device station of the CC-Link system and allows remote control via network.

Required interface unit : A8GT-J61BT13, A8GT-J61BT15



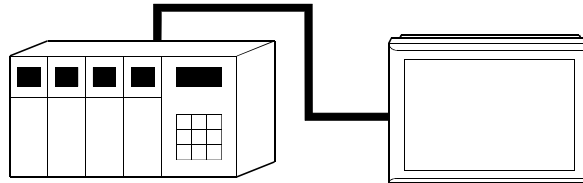
(6) Omron PLC connection

Allows monitoring by connecting to an Omron PLC.

Required interface unit : A9GT-RS4, A9GT-RS2

• CPUs that allow monitoring

C200H, C200HS, C200H, CQM1, C1000H, C2000H, CV1000



RS-422 communication/RS232C communication enables monitoring.

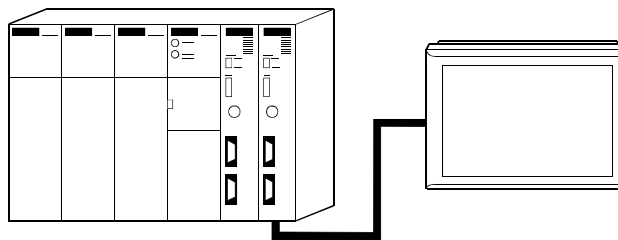
(7) Yasukawa PLC connection

Allows monitoring by connecting to a Yasukawa PLC.

Required interface unit : A9GT-RS4, A9GT-RS2

• CPUs that allow monitoring

GL60S, GL60H, GL70H, GL120, GL130



RS-422 communication/RS232C communication enables monitoring.

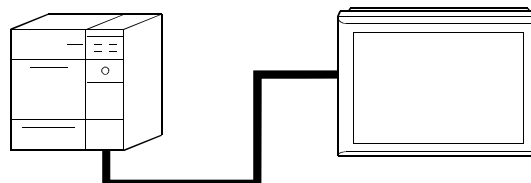
(8) Connecting to Allen-Bradley PLC

Monitoring with connection to the Allen-Bradley PLC is now allowed.

Required interface unit : A9GT-RS2

• CPUs that allow monitoring

SLC 5/03, SLC 5/04



Monitored with RS-232C communication

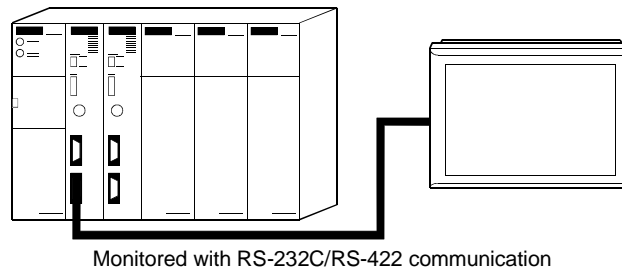
(9) Connecting to Sharp PLC

Monitoring with connection to the Sharp PLC is now allowed.

Required interface unit : A9GT-RS4, A9GT-RS2

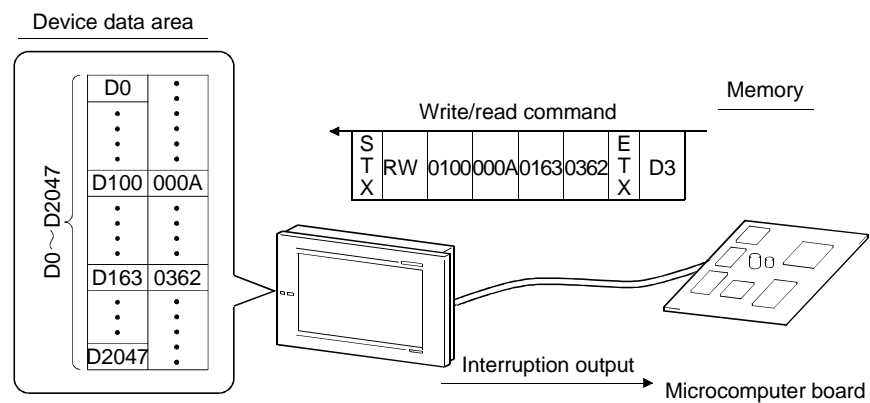
- CPUs that allow monitoring

JW-21CU, JW-22CU, JW-31CUH, JW-32CUH, JW-33CUH, JW-50CUH,
JW-70CUH, JW-100CUH



(10) Microcomputer connection

Virtual device (D) of the GOT can be monitored by sending/receiving data from/to a personal computer, microcomputer board, PLC, etc. (hereinafter referred to as "host")

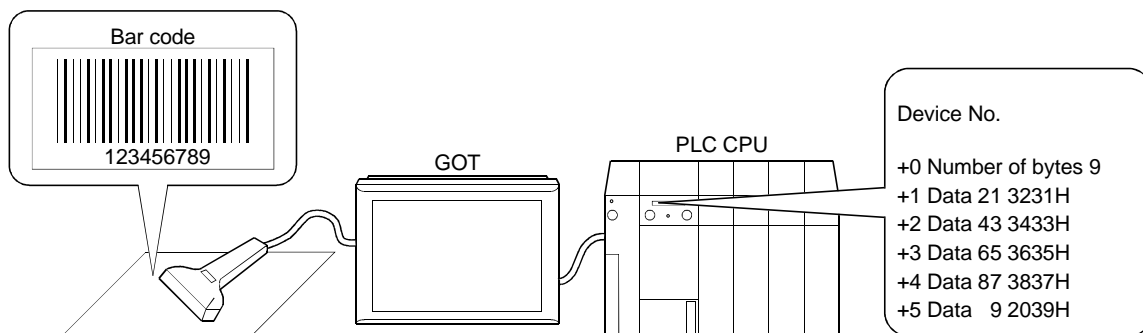


(11) Connecting to optional devices

(a) Bar code reader

If connected to a bar code reader, the GOT can write data read with the bar code reader to the PLC CPU.

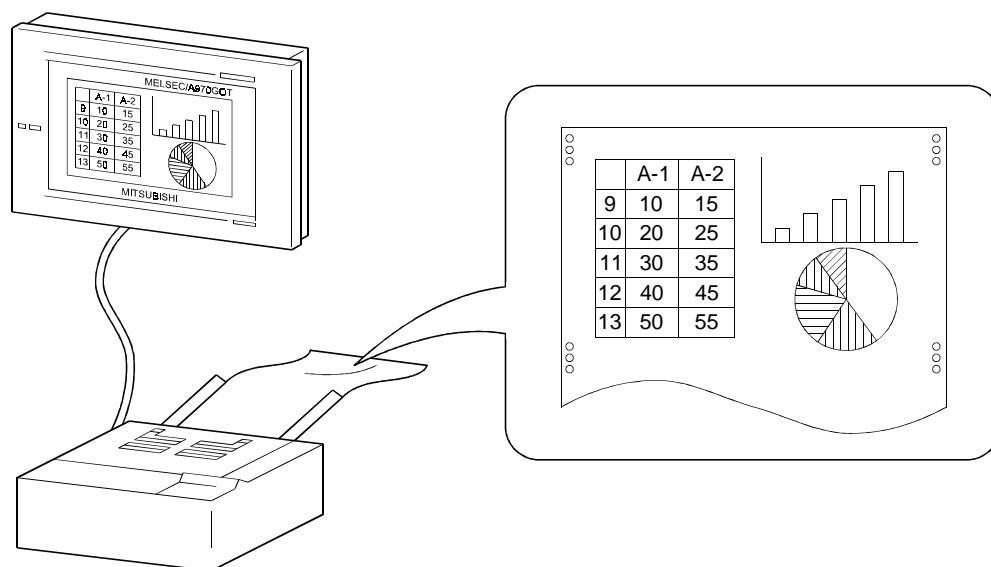
Required interface unit : None



(b) Printer

If connected to a printer, the GOT can print data of alarm history and hard copy functions.

Required interface unit : None

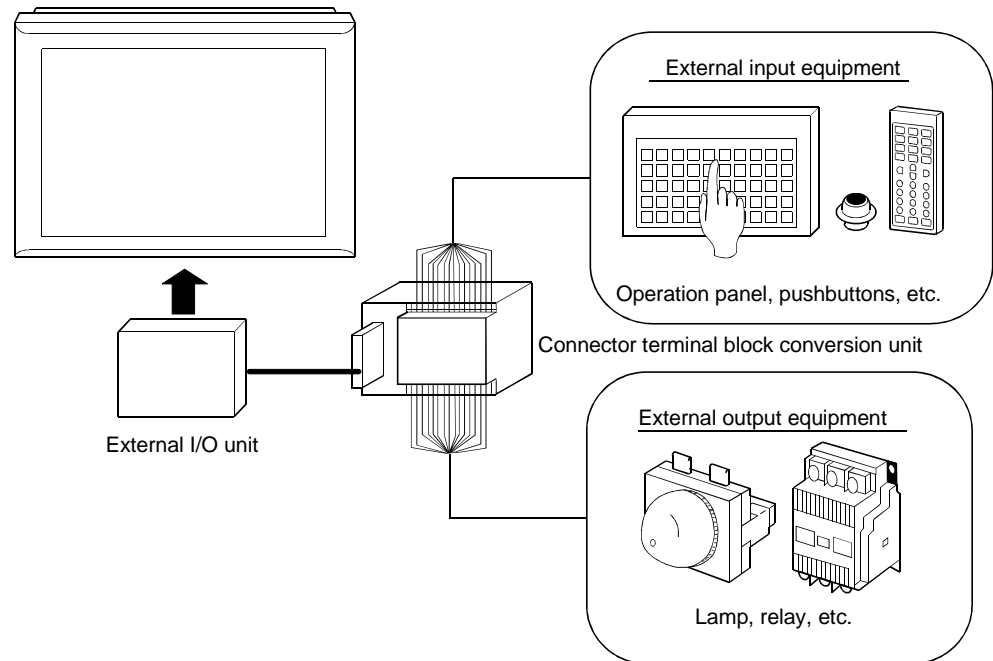


(c) External I/O equipment

By connection of input equipment (operation panel, ten-key panel, pushbuttons, etc.), you can write to devices, e.g. touch input, numerical input and screen switching, from outside the GOT.

In addition, you can connect output equipment (lamps, relays, etc.) to provide outputs from the GOT to the outside.

Required interface unit ... A9GT-70KBF



MEMO

[illegible]

Chapter2 Specification

2.1 PLC CPU that allows monitoring

PLC CPUs that allow monitoring are described in the following table.

Applicable model		Bus connection	MELSECNET connection	CC-Link connection	Computer link connection	CPU direct connection
MELSEC-A/QnA/ QnASCPU	<Large A/QnACPU> (*1) QnACPU, Q4ARCPU, Q2ACPU(S1), Q2AHCPU(S1), AnUCPU, A2UCPU(S1), AnACPU, A2ACPU(S1), AnNCPU, A2NCPU(S1) (AnN(S1) must be version L or later with link, and version H or later without link.) <Small A/QnASCPU> Q2ASCPU(S1), Q2ASHCPU(S1), A2USCPU(S1), A2USHCPU-S1, A1SHCPU, A2SHCPU, A1SCPU, A2SCPU (version H or later), A1SCPUC24-R2, A1SJCPU(S3), A1SJHCPU, A0J2HCPU (version E or later), A2CCPU (version H or later), A2CCPUC24, A2CJCPU	○	○	○	○	○
Computer link unit that allows connection	<For RS-422> AJ71QC24(R4), AJ71UC24, A1SJ71UC24-R4 A1SJ71QC24, AJ71C24-S8 <For RS-232C> AJ71QC24(R2), AJ71UC24, A1SJ71QC24(R2), A1SJ71UC24-R2, A1SJ71C24-R2					
	A1FXCPU	×	×	×	×	○
FA controller	LM610, LM7600, LM8000	×	○	×	×	×
Motion controller	A373UCPU, A373UCPU-S3, A273UCPU, A273UHCPU, A171SCPU-S3, A171SHCPU, A172SHCPU	○	○	○	○	○
MELSEC-FX	FX0, FX0S, FX0N, FX2N, FX2NC, FX1, FX2, FX2C	×	×	×	×	○
Omron PLC	C200HS, C200H, C200HX, C200HG, C200HE, CQM1, C1000H, C2000H, CV1000				○	
Upper link unit that allows connection	C200H-LK201-V1, C200H-LK202-V1, C500-LK201-V1, C120-LK201-V1, C120-LK202-V1	×	×	×	○ RS-422/ RS-232C	×
Yasukawa PLC	GL60S, GL60H, GL70H, GL120, GL130				○	
Memo bus unit that allows connection	JAMSC-IF60/61, JAMSC-IF612, 120 NOM 271 00	×	×	×	○ RS-422/ RS-232C	×
Allen-Bradley PLC	SLC 5/03, SLC 5/04	×	×	×	×	○ RS-232C
Sharp PLC	JW-21CU, JW-22CU, JW-31CUH, JW-32CUH, JW-33CUH, JW-50CUH, JW-70CUH, JW-100CUH				○	
Link unit that allows connection	JW-21CM, JW-10CM, ZW-10CM	×	×	×	○ RS-422/ RS-232C	○ RS-232C

- A2CCPU does not allow bus connection or computer link connection.
- A2CCPUC24 does not allow bus connection.
- For computer link connection of A2S/A2S-S1/A2SH-S1/A2SH/A1SH/A1SJH/A171SH/A172SHCPU/A0J2HCPU, use computer link unit of software version U or later.
Also, the A0J2-C214-S1 (A0J2HCPU-dedicated computer link unit) cannot be used.
- Connection to the remote I/O station cannot be made independently of the connection form.
- *1 If the version of CPU is earlier than the one indicated in the parentheses, data cannot be written.
(Bus connection is not related to the version.)

2.2 Device name that allows monitoring

(1) MELSEC-ACPU

Device name		Available range for monitoring
Bit device	Input (X)	X0 to X1FFF
	Output (Y)	Y0 to Y1FFF
	Internal relay (M)	M0 to M8191
	Annunciator (F)	F0 to F2047
	Link relay (B)	B0 to B1FFF
	Special internal relay (M)	M9000 to M9255
	Latch relay (L)	L0 to L8191
	Timer	Contact (TT) TT0 to TT2047
		Coil (TC) TC0 to TC2047
	Counter	Contact (CT) CT0 to CT1023
		Coil (CC) CC0 to CC1023
	Word device bit	Designated bit of the following word devices (except for index register and buffer memory)
	GOT bit register (GB)	GB64 to GB1023
Word device	Data register (D)	D0 to D8191
	Special data register (D)	D9000 to D9255
	Link register (W)	W0 to W1FFF
	Timer (current value) (T)	T0 to T2047
	Counter (current value) (C)	C0 to C1023
	File register (R)	R0 to R8191
	Extended file register (ER)	Block 1 to 255
		Device R0 to R8191
	Index register *2	(Z) Z0 to Z6(Z0=Z)
		(V) V0 to V6(V0=V)
	Accumulator (A)	A0 to A1
	Buffer memory (special function unit) (BM)	BM0 to BMn*1
	Bit device word *3 *4	Converting the above bit devices to words (except for timer and counter)
	GOT data register (GD)	GD64 to GD1023

*1 Only special function units of the GOT connection station can be designated.

Set within the address range of the buffer memory of the designated special function unit.

*2 Writing to the index register is prohibited during computer link connection.

*3 Use a multiple of 16 for setting device number.

*4 If converting the special internal relay (M) to a bit device word, regard 9000 as 0 and use a multiple of 16 for the device number.

(Example) M9000, M9016, M9240

(2) MELSEC-QnACPU

Device name		Allowable range of monitoring
Bit device	Input (X)	X0 to X1FFF
	Output (Y)	Y0 to Y1FFF
	Internal relay (M)	M0 to M32767
	Latch relay (L)	L0 to L32767
	Annunciator (F)	F0 to F32767
	Link relay (B)	B0 to B1FFF
	Timer	Contact (TT) TT0 to TT32767
		Coil (TC) TC0 to TC32767
	Counter	Contact (CT) CT0 to CT32767
		Coil (CC) CC0 to CC32767
	Special relay (SM)	SM0 to SM2047
	Word device bit	Designated bit of the following word devices (except for index register and buffer memory)
Word device	GOT bit register (GB)	GB64 to GB1023
	Data register (D)	D0 to D32767
	Special data register (SD)	SD0 to SD2047
	Link register (W)	W0 to W1FFF
	Timer (current value) (T)	T0 to T32767
	Counter (current value) (C)	C0 to C32767
	File register (R)	R0 to R32767* ¹
	Extended file register (ER)	Block 0 to 31
		Device R0 to R32767
	Extended file register (ZR)	ZR0 to ZR1042431* ²
	Index register (Z)	Z0 to Z15
	Buffer memory (special function unit) (BM)	BM0 to BMn* ³
	Bit device word * ⁴	Converting the above bit devices to words
	GOT data register (GD)	GD64 to GD1023

*1 Block file register that is switched by the RSET command is monitored.

*2 Block file register that is switched by the QFRSET command is monitored.

*3 Only special function units of the GOT connection station can be designated.

Set within the address range of the buffer memory of the designated special function unit.

*4 Set the device numbers in multiples of 16.

(3) CC-Link connection (Remote device)

Device name		Available range for monitoring
Bit device	Remove input (RX)	X0 to X7FF
	Remote output (RY)	Y0 to Y7FF
	Bit designation of remote register write area (RWw)	Ww0 to WwFF
	Bit designation of remote register read area (RWr)	Wr0 to WrFF
	GOT bit register (GB)	GB64 to GB1023
	Bit designation of GOT data register (GD)	GD64 to GD1023
Word device	Remote register write area (RWw)	Ww0 to WwFF
	Remote register read area (RWr)	Wr0 to WrFF
	GOT data register (GD)	GD64 to GD1023
	Converting GOT bit register to word (GB)	GB64 to GB1023

(4) MELSEC-FXCPU

Device name		Available range for monitoring	Device number expression
Bit device	Input relay (X)	X0000 to X0377	Octal notation
	Output relay (Y)	Y0000 to Y0377	
	Auxiliary relay (M)	M0000 to M3071	Decimal notation
	State (S)	S0000 to S0999	
	Special auxiliary relay (M)	M8000 to M8255	
	Timer contact (T)	T000 to T255	
	Counter contact (C)	C000 to C255	
	Word device bit * ¹	—	—
Word device	GOT bit register (GB)	GB64 to GB1023	
	Timer (current value) (T)	T000 to T255	
	Counter (current value) (C)	C000 to C255	
	Data register (D)	D000 to D0999	
	RAM file register (D)	D1000 to D7999	
	Special data register (D)	D8000 to D8255	
	Bit device word * ² * ³	—	
	GOT data register (GD)	GD64 to GD1023	

*1 While the touch key function to which a word device bit is designated as the monitor device is executed, do not write the word device in a sequence program.

*2 Bit devices of the timer contact (T) and counter contact (C) cannot be converted to words.

*3 Use a multiple of 16 for designating the device number.

(5) Omron PLC

Device name		Available range for monitoring
Bit device	I/O relay	..0000 to 51115
	Internal auxiliary relay	
	Data link relay (LR)	LR0000 to LR6315
	Auxiliary memory relay (AR)	AR0000 to AR2715
	Holding relay (HR)	HR0000 to HR9915
	Timer contact (TIM) * ¹	TIM000 to TIM511
	Counter contact (CNT) * ¹	CNT000 to CNT511
	Data memory (DM) * ²	DM0000 to DM9999
	Timer (current value) (TIM) * ²	TIM000 to TIM511
	Counter (current value) (CNT) * ²	CNT000 to CNT511
	GOT bit register	GB64 to GB1023
Word device	I/O relay	..000 to 511
	Data link relay (LR)	LR0000 to LR0063
	Auxiliary memory relay (AR)	AR0000 to AR0027
	Holding relay (HR)	HR0000 to HR0099
	Data memory (DM)	DM0000 to DM9999
	Timer (current value) (TIM)	TIM000 to TIM511
	Counter (current value) (CNT)	CNT000 to CNT511
	GOT data register	GD64 to GD1023

*1 If CV1000 is used, no writing is available.

*2 While the touch key function to which a word device bit is designated as the monitor device is executed, do not write the word device in a sequence program.

(6) Yasukawa PLC

Device name		Available range for monitoring
Bit device	Coil	O01 to O63424
	Input relay	I1 to I63424
	Link coil	D1 to D2048
		D10001 to D12048
		D20001 to D22048
Word device	GOT bit register	GB64 to GB1023
	Input register	Z1 to Z31840
	Holding register	W1 to W28291
	Link register	R1 to R2048
		R10001 to R12048
		R20001 to R22048
	Constant register	K1 to K4096* ¹
	GOT data register	GD64 to GD1023

*1 Change range 31000 to 35096 to range 1 to 4096.

(7) Connecting to Allen-Bradley PLC

Device name		Monitoring range	Device No. notation
Word device	Bit (B)	B0030000 to B003255F B0100000 to B255255F	Decimal
	Timer (timing bit) (TT)	TT0040000 to TT0042550 TT0100000 to TT2552550	
	Timer (timing bit) (TN)	TN0040000 to TN0042550 TN0100000 to TN2552550	
	Counter (up counter) (CU)	CU0050000 to CU0052550 CU0100000 to CU2552550	
	Counter (down counter) (CD)	CD0050000 to CD0052550 CD0100000 to CD2552550	
	Counter (completion bit) (CN)	CN0050000 to CN0052550 CN0100000 to CN2552550	
	Timer (set value) (TP)	TP004000 to TP004255 *1 TP010000 to TP255255	
	Timer (current value) (TA)	TA004000 to TA255255 *1 TA010000 to TA255255	
	Counter (set value) (CP)	CP004000 to CP255255 *1 CP010000 to CP255255	
	Counter (current value) (CA)	CA005000 to CA005255 *1 CA010000 to CA255255	
	GOT internal bit register (GB)	GB64 to GB1023	
Bit device	Bit (B)	B003000 to B003255 B010000 to B255255	Decimal
	Timer (set value) (TP)	TP004000 to TP004255 *1 TP010000 to TP255255	
	Timer (current value) (TA)	TA004000 to TA255255 *1 TA010000 to TA255255	
	Counter (set value) (CP)	CP004000 to CP255255 *1 CP010000 to CP255255	
	Counter (current value) (CA)	CA005000 to CA005255 *1 CA010000 to CA255255	
	Integer (N)	N007000 to N007255 N010000 to N255255	
	GOT internal data register (GD)	GD64 to GD1023	

*1 Writing on device is not allowed for 32 bit data.

(8) Connecting to Sharp PLC

Device name	Setting monitor	Device No. notation
I/O relay	0 to 15777 20000 to 75777	Octal
Timer counter (contact)	T/C0000 to T/C1777	
Timer counter (current value)	T/C0000 to T/C1777 (b0000 to b3776)	
Register	09000 to 09776	
	19000 to 19776	
	29000 to 29776	
	39000 to 39776	
	49000 to 49776	
	59000 to 59776	
	69000 to 69776	
	79000 to 79776	
	89000 to 89776	
	99000 to 99776	
	E0000 to E0776	
	E1000 to E1776	
	E2000 to E2776	
	E3000 to E3776	
	E4000 to E4776	
	E5000 to E5776	
	E6000 to E6776	
	E7000 to E7776	
File register	1000000 to 1177776 2000000 to 2177776 3000000 to 3177776 4000000 to 4177776 5000000 to 5177776 6000000 to 6177776 7000000 to 7177776	

(9) Microcomputer connection

Device name		Available range for monitoring
Bit device	GOT bit register (GB)	GB64 to GB1023* ¹
	Data register (D)	D0 to D2047
	Bit designation of word device (C)	___* ¹
Word device	Data register (D)	D0 to D2047
	GOT data register (GD)	GD64 to GD1023* ¹

*1 Writing and reading operations are not available from the host to devices GB and GD.

2.3 Monitoring of special function unit

Monitoring of special function unit is limited to the following stations.

- (1) When using bus connection/CPU direct connection/Computer link connection
Special function unit on the base of the connected station
- (2) When using MELSECNET (II) connection/MELSECNET/B connection
Special function unit on the base of the master station
- (3) When using MELSECNET/10 connection
Special function unit on the base of the control and normal stations
- (4) When using CC-Link connection (Intelligent device station)
Special function unit on the base of the master and local stations

2.4 Access range for monitoring

POINT

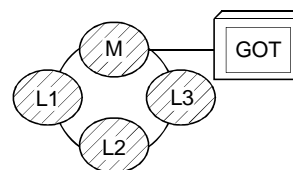
It should be noted that you cannot connect the GOT to monitor a remote I/O station in a network system or data link system.

2.4.1 Data link system access range for monitoring when using MELSEC-ACPU and QnACPU

(1) Bus connection/CPU direct connection/Computer link connection

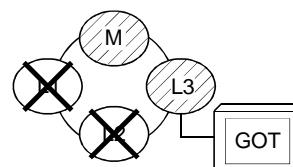
(a) If connected to master station

- Local stations can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.



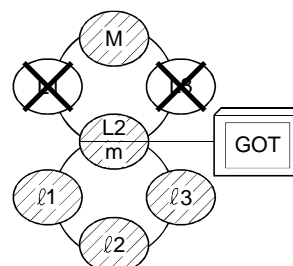
(b) If connected to local station

- The master station can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.
- Other local stations cannot be monitored.



(c) If connected to the master station on the third layer

- The master station on the second layer and local stations on the third layer can be monitored. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.
- Local stations on the second layer cannot be monitored.



(2) MELSECNET/B connection and MELSECNET(II) connection

- The GOT is regarded as a local station and can monitor only the master station. If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the link parameter cannot be monitored.
- Local devices cannot be monitored.

When setting the monitor device, designate the NW number and the station number as follows.

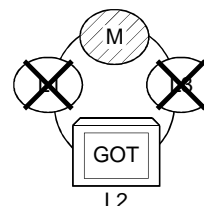
When monitoring devices B and W that are allocated by the link parameter :

NW number : 0, Station number : Local

When monitoring devices other than B and W of the master station :

NW number : 0, Station number :

Others (Station number : 0)



POINT

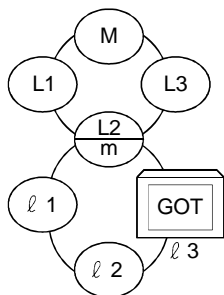
For monitoring devices B and W that are allocated by the link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

(3) Monitoring devices of other stations

If other devices on the data link system are monitored, display speed will be significantly reduced. Therefore monitor link relay (B) and link register (W) that are allocated by the link parameter.

(4) Setting method of monitor device

Describes the NW numbers for setting monitor devices and method of setting station numbers with an example shown below.

**POINT**

For monitoring devices B and W that are allocated by the link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

- (a) When monitoring devices B and W that are allocated by the connected station (local station) and link parameter :
NW number : 0, Station number : Local
- (b) When monitoring devices of other stations :
NW number : 0, Station number : Refer to the following table.

Station number setting

Station to be accessed Station connected to GOT	M	L1	L2 m	L3	l1	l2	l3
M	Local	Other 1	Other 2	Other 3	—	—	—
L1	Other 0	Local	—	—	—	—	—
L2 m	Other 0	—	Local	—	Other 1	Other 2	—
L3	Other 0	—	—	Local	—	—	—
l1	—	—	Other 0	—	Local	—	—
l2	—	—	Other 0	—	—	Local	—
l3(GOT)	—	—	Other 0	—	—	—	—

2.4.2 Network system access range for monitoring when using MELSEC-ACPU and QnACPU

(1) Bus connection

(a) If connected to QnACPU/AnUCPU

- 1) The control station on the network and all normal stations can be monitored.
- 2) The control station on the other network and all normal stations can be monitored.

(To monitor the other network, be sure to designate the routing parameter.)

- 3) If connected to an intermediate station and the data link system is included, the master station and local stations can be monitored.
- 4) If connected to an intermediate station, it is not necessary to designate the data link parameter "Effective unit number for accessing other stations" for the PLC CPU of the connected station. (If designated, the parameter will be ignored.)
- 5) Devices of other stations (other than devices B and W that are allocated by the network parameter) may not allow monitoring depending on their PLC CPU.

Refer to Examples 1 to 4.in (7).

(b) If connected to AnA and AnNCPU

- 1) Control stations on the network can be monitored.
If the PLC CPU of the local station is QnACPU, devices other than B and W that are allocated by the network parameter cannot be monitored.
- 2) Normal stations on the network cannot be monitored.
- 3) Stations on the other network cannot be monitored.

(2) CPU direct connection/computer link connection

(a) If connected to QnACPU

- 1) Access range is as described in (1) (a).

(b) If connected to AnUCPU

- 1) Control station on the network and all normal stations can be monitored.
When devices of other stations (other than devices B and W that are allocated by the network parameter) are monitored, monitoring is not available if the PLC CPU to be monitored is QnACPU.
- 2) If connected to an intermediate station, use data link parameter "Effective unit number to access other stations" to designate the unit number that is connected to the network to be monitored.

(c) If connected to AnA, AnNCPU

- 1) Control stations on the network can be monitored.
If the PLC CPU of the control station is AnACPU, devices other than B and W that are allocated by the network parameter cannot be monitored.
- 2) Normal stations on the network cannot be monitored.
- 3) The other network cannot be monitored.

(3) CC-Link connection (intelligent device station)

- Connected stations can be monitored.
- Other stations on the network system cannot be monitored.

(4) MELSECNET/10 connection

- (a) The GOT is regarded as a normal station. The control station on the network and all normal stations can be monitored.

If the PLC CPU to be monitored is QnACPU, monitoring is available within the device access range for AnA. (The access range for monitoring of timer (T) and counter (C) is limited to 0 to 225. File registers (R, ER, ZR) cannot be monitored.)

- (b) The other network cannot be monitored.

- (c) If devices of other stations (other than devices B and W that are allocated by the network parameter) are monitored, monitoring may not be available depending on the PLC CPU of the network system to be monitored. Refer to (Example 6).

(5) Monitoring devices of other stations on network

If devices of other stations on the network system are monitored, display speed will be significantly reduced. Therefore monitor link relay (B) and link register (W) that are allocated by the network parameter.

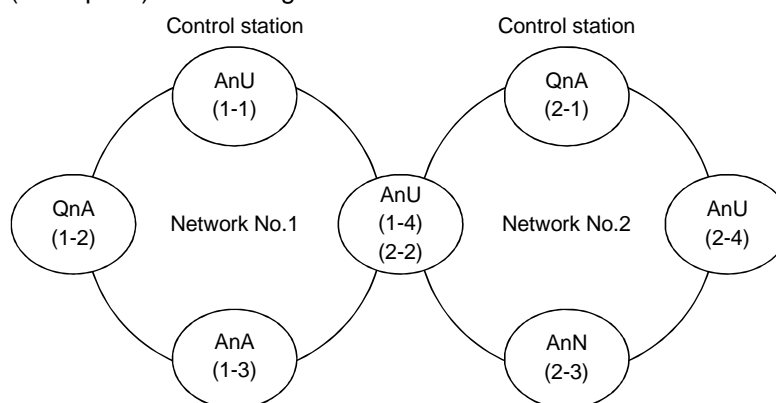
(6) Monitoring devices of the other network

- (a) Be sure to designate the routing parameter to the PLC CPU of the connected station.

- (b) If the other network is monitored, display speed of sprite etc. will be significantly reduced.

(7) Monitor access range of other stations and setting method of monitor devices

(Example 1) When using bus connection



• Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1				Network No.2			
		AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)		○ Local	×	○	○	×	○	×	○
QnA (1-2)		○	○ Local	×	○	○	○	×	○
AnA (1-3)		○	×	○ Local	×	×	×	×	×
AnU (1-4) (2-2)		○	×	×	○ Local	×	○ Local	×	○
QnA (2-1)		○	○	×	○	○ Local	○	○	○
AnN (2-3)		×	×	×	×	×	×	○ Local	×
AnU (2-4)		○	×	×	○	×	○	×	○ Local

○ : Accessible × : Not accessible

POINT

For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

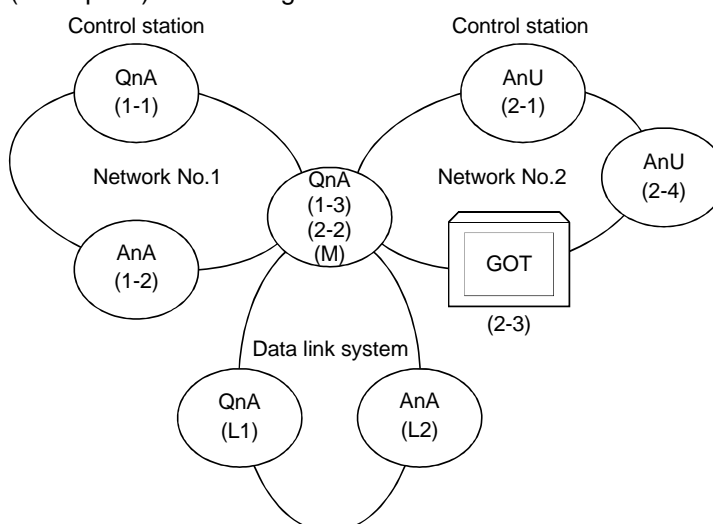
- Designating NW number and station number for setting monitor device
 - 1) Monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local
 - 2) When monitoring other stations (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1				Network No.2			
		AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)		0, Local	—	1, Other (3)	1, Other (4)	—	2, Other (2)	—	2, Other (4)
QnA (1-2)		1, Other (1)	0, Local	—	1, Other (4)	2, Other (1)	2, Other (2)	—	2, Other (4)
AnA (1-3)		0, Other (0)	—	0, Local	—	—	—	—	—
AnU (1-4)		1, Other (1)	—	—	0, Local	—	0, Local	—	2, Other (4)
QnA (2-1)		1, Other (1)	1, Other (2)	—	1, Other (4)	0, Local	2, Other (2)	2, Other (3)	2, Other (4)
AnN (2-3)		—	—	—	—	—	—	0, Local	—
AnU (2-4)		1, Other (1)	—	—	1, Other (4)	—	2, Other (2)	—	0, Local

How to read the table

2, Other (2)
↑ ↑
NW number Station number

(Example 2) When using bus connection



- Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1			Network No.2				Data link system		
		QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
QnA (1-1)		○ Local	○	○	○	○	—	○	○	×	×
AnA (1-2)		×	○ Local	×	×	×	—	×	×	×	×
QnA (1-3)		○	×	○ Local	○	○ Local	—	○	○ Local	×	○
QnA (2-2)		○	×	○ Local	○	○ Local	—	○	○ Local	×	○
(M)											
AnU (2-1)		×	×	×	○ Local	×	—	○	×	×	×
GOT (2-3)		×	×	×	○	△	—	○	△	×	×
AnU (2-4)		×	×	×	○	×	—	○ Local	×	×	×
QnA (L1)		×	×	×	×	×	—	×	×	○ Local	×
AnA (L2)		×	×	×	×	×	—	×	×	×	○ Local

○ : Accessible △ : Accessible within the range for AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored)

× : Not accessible

POINT

For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

- Designating NW number and station number for setting monitor device
 - 1) When monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local station
 - 2) When monitoring other stations (other than B and W)/other network

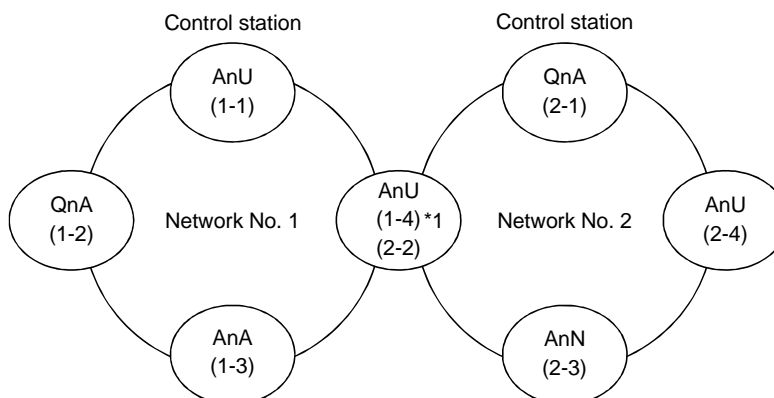
Station connected to GOT	Station to be accessed		Network No.1				Network No.2				Data link system		
	QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)			
QnA (1-1)	0, Local	1, Other (2)	1, Other (3)	2, Other (1)	2, Other (2)	—	2, Other (4)	1, Other (3) or 2, Other (2)	—	—			
AnA (1-2)	—	0, Local	—	—	0, Local	—	—	—	—	—			
QnA (1-3)	1, Other (1)	—	0, Local	2, Other (1)	—	—	2, Other (4)	0, Local	—	0, Other (2) *1			
QnA (2-2)	—	—	—	0, Local	—	—	2, Other (4)	—	—	—			
AnU (2-1)	—	—	—	0, Other (1)	0, Other (2)	—	0, Other (4)	0, Other (2)	—	—			
GOT (2-3)	—	—	—	2, Other (1)	—	—	0, Local	—	—	—			
AnU (2-4)	—	—	—	—	—	—	—	—	0, Local	—			
QnA (L1)	—	—	—	—	—	—	—	—	0, Local	—			
AnA (L2)	—	—	—	—	—	—	—	—	—	0, Local			

*1 When monitoring the data link system, designate the NW number as 0.

How to read the table

2, Other (2)
 ↑ ↑
 NW number Station number

(Example 3) When using CPU direct connection or computer link connection



*1 Data link parameter "Effective unit number for accessing other stations" is designated to the unit number that is connected to the network No. 1.

- Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1				Network No.2			
		AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)		○ Local	×	○	○	×	○	×	×
QnA (1-2)		○	○ Local	×	○	○	○	×	○
AnA (1-3)		○	×	○ Local	×	×	×	×	×
AnU (1-4) (2-2)		○	×	×	○ Local	×	○ Local	×	×
QnA (2-1)		○	○	×	○	○ Local	○	○	○
AnN (2-3)		×	×	×	×	×	×	○ Local	×
AnU (2-4)		×	×	×	×	×	○	×	○ Local

○ : Accessible × : Not accessible

POINT

For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

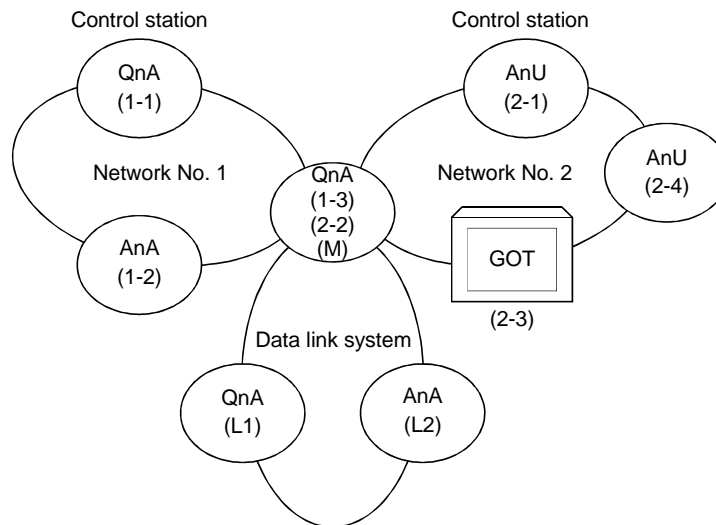
- Designating NW number and station number for setting monitor device
 - 1) Monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local
 - 2) When monitoring other stations (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1				Network No.2			
		AnU (1-1)	QnA (1-2)	AnA (1-3)	AnU (1-4)	QnA (2-1)	AnU (2-2)	AnN (2-3)	AnU (2-4)
AnU (1-1)		0, Local	—	0, Other (3)	0, Other (4)	—	0, Other (4)	—	—
QnA (1-2)		1, Other (1)	0, Local	—	1, Other (4)	2, Other (1)	2, Other (2)	—	2, Other (4)
AnA (1-3)		0, Other (0)	—	0, Local	—	—	—	—	—
AnU (1-4) (2-2)		0, Other (1)	—	—	0, Local	—	0, Local	—	—
QnA (2-1)		1, Other (1)	1, Other (2)	—	1, Other (4)	0, Local	2, Other (2)	2, Other (3)	2, Other (4)
AnN (2-3)		—	—	—	—	—	—	0, Local	—
AnU (2-4)		—	—	—	—	—	0, Other (2)	—	0, Local

How to read the table

2, Other (2)
↑ ↑
NW number Station number

(Example 4) When using CPU direct connection or computer link connection



• Monitor access range of other station devices (other than B and W)/other network

Station connected to GOT	Station to be accessed	Network No.1			Network No.2				Data link system		
		QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
QnA (1-1)		○ Local	○	○	○	○	—	○	○	×	×
AnA (1-2)		×	○ Local	×	×	×	—	×	×	×	×
QnA (1-3) (2-2) (M)		○	×	○ Local	○	○ Local	—	○	○ Local	×	○
AnU (2-1)		×	×	×	○ Local	×	—	○	×	×	×
GOT (2-3)		×	×	×	○	△	—	○	△	×	×
AnU (2-4)		×	×	×	○	×	—	○ Local	×	×	×
QnA (L1)		×	×	×	×	×	—	×	×	○ Local	×
AnA (L2)		×	×	×	×	×	—	×	×	×	○ Local

○ : Accessible △ : Accessible within the range for AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored)

× : Not accessible

POINT

For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

- Designating NW number and station number for setting monitor device
 - 1) When monitoring devices B and W that are allocated by the network parameter at the connected station (local station)
NW number: 0, Station number: Local station
 - 2) When monitoring other stations (other than B and W)/other network

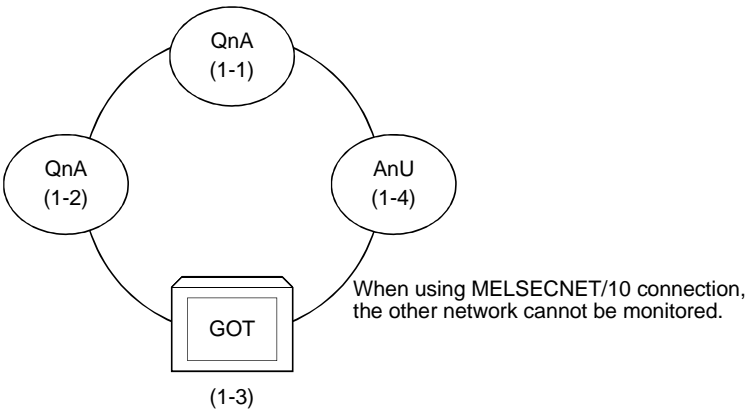
Station connected to GOT	Station to be accessed	Network No.1			Network No.2				Data link system		
		QnA (1-1)	AnA (1-2)	QnA (1-3)	AnU (2-1)	QnA (2-2)	GOT (2-3)	AnU (2-4)	QnA (M)	QnA (L1)	AnA (L2)
	QnA (1-1)	0, Local	1, Other (2)	1, Other (3)	2, Other (1)	2, Other (2)	—	2, Other (4)	1, Other (3) or 2, Other (2)	—	—
	AnA (1-2)	—	0, Local	—	—	—	—	—	—	—	—
	(1-3)										
	QnA (2-2)	1, Other (1)	—	0, Local	2, Other (1)	0, Local	—	2, Other (4)	0, Local	—	0, Other (2) *1
	(M)										
	AnU (2-1)	—	—	—	0, Local	—	—	2, Other (4)	—	—	—
	GOT (2-3)	—	—	—	0, Other (1)	0, Other (2)	—	0, Other (4)	0, Other (2)	—	—
	AnU (2-4)	—	—	—	2, Other (1)	—	—	0, Local	—	—	—
	QnA (L1)	—	—	—	—	—	—	—	—	0, Local	—
	AnA (L2)	—	—	—	—	—	—	—	—	—	0, Local

*1 When monitoring the data link system, designate the NW number as 0.

How to read the
table

2, Other (2)
↑ ↑
NW number Station number

(Example 5) When using MELSECNET/10 connection



• Monitor access range for other station devices (other than B and W)

Station connected to GOT \ Station to be accessed	QnA (1-1)	QnA (1-2)	GOT (1-3)	AnU (1-4)	
GOT (1-3)	△	△	—	○	○ : Accessible △ : Accessible within the range of AnA (T/C: 0 to 255, R/ER/ZR cannot be monitored.) × : Not accessible

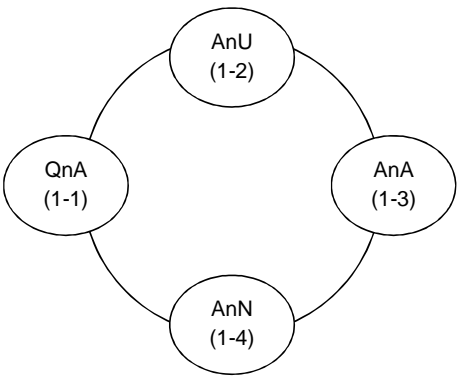
POINT
For monitoring devices B and W that are allocated by the network parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

- Designating NW number and station number for setting monitor device
 - 1) Monitoring devices B and W that are allocated by network parameter
NW number: 0, Station number: Local
 - 2) Monitoring other stations (other than B and W)

Station connected to GOT \ Station to be accessed	QnA (1-1)	QnA (1-2)	GOT (1-3)	AnU (1-4)	
GOT (1-3)	0, Other (1)	0, Other (2)	—	0, Other (4)	

How to read the table: 0, Other (2)
NW number Station number

(Example 6) When using CC-Link connection (intelligent device station)



Station connected to GOT \ Station to be accessed	QnA (1-1)	AnU (1-2)	AnA (1-3)	AnN (1-4)	
QnA (1-1)	×	×	×	×	
AnU (1-2)	×	○	×	×	
AnA (1-3)	×	×	○	×	
AnN (1-4)	×	×	×	○	○ : Accessible × : Not accessible

2.4.3 CC-Link system access range for monitoring when using MELSEC-ACPU and QnACPU

- (1) When using Bus connection/CPU direct connection/computer link connection
Only connected stations can be monitored.
- (2) When using CC-link connection (remote device station)
- (a) Access range
Devices RX, RY, RWw, RWr for which the GOT is allocated to the master station by setting the CC-Link parameter and the internal device of the GOT can be monitored.
Other devices RX, RY, RWw, RWr allocated to the master station cannot be monitored.
- (b) Designating NW number and station number
Be sure to designate as follows.
NW number:0, Station number: Local
- (c) Designating device name and device number
Use the following device names.
For devices RX, RY, RWw and RWr, designate the addresses allocated by station number setting.

Device to be monitored		Device name to be set by drawing software	Device setting range
Remote input	RX	X	X0 to X7FF
Remote output	RY	Y	Y0 to Y7FF
Remote register (writing area)	RWw	Ww	Ww0 to WwFF
Remote register (reading area)	RWr	Wr	Wr0 to WrFF
GOT internal bit device	GB	GB	GB0 to GB1023
GOT internal word device	GD	GD	GD0 to GD1023

(3) When using CC-Link connection (intelligent device station)

(a) Access range

Master station/local station can be monitored.

By setting CC-Link parameter, all devices RX, RY, RWw and RWr that are allocated to the master station can be monitored.

POINT

For monitoring devices RX, RY, RWw and RWr that are allocated by setting CC-Link parameter, make sure to use the local device number if designating devices allocated to other station. If not, display speed will be reduced.

(b) Setting NW number and station number

1) When monitoring devices RX, RY, RWw and RWr that are allocated to the master station by setting CC-Link parameter

NW number: 0, PLC station number: Local

2) When monitoring PLC CPU devices of other station

NW number: 0, PLC station number: Other (Station number: n)

(n: Station number of other station you want to monitor (0: Master station, 1-64: Local station))

(c) Setting device name and device number

1) Monitoring devices RX, RY, RWw and RWr that are allocated by setting CC-Link parameter

Use the following device names.

For devices RX, RY, RWw and RWr, designate the addresses allocated by station number setting.

Device to be monitored		Device name to be set by drawing software	Device setting range
Remote input	RX	X	X0 to X7FF
Remote output	RY	Y	Y0 to Y7FF
Remote register (writing area)	RWw	Ww	Ww0 to WwFF
Remote register (reading area)	RWr	Wr	Wr0 to WrFF

2) Monitoring PLC CPU devices of other stations

For device name and device number, refer to 2.2.

2.4.4 Access range for monitoring when using MELSEC-FXCPU, other PLC and microcomputer connections

Only the connected CPU can be monitored. Other stations cannot be monitored.

Chapter3 Bus connection

3.1 First step in bus connection

3.1.1 GOT handling from PLC CPU in bus connection

In bus connection, the PLC CPU recognizes the GOT as a special function unit of 32 I/O points.

When setting the GOT, it cannot be set on a main base.

The GOT can be set in a location of empty points within the maximum I/O points of the PLC CPU used, excluding those of the main base. (It is recommended to assign the GOT after the unit's last I/O number.)

However, if the PLC CPU has empty points, the GOT cannot be set in such a location when the PLC CPU used is the Q3ACPU, Q4A(R)CPU, A3□CPU, A4UCPU or A0J2HCPU and all I/O slots on all bases of up to the seventh extension base are used.

3.1.2 Restriction on the number of GOTs by the PLC CPU connected to

In bus connection, note that the number of GOTs connected is restricted by the PLC CPU connected to and the number of special function modules loaded.

	MELSEC-QnACPU/MELSEC-ACPU				Motion Controller CPU	
	QnA(R)CPU, QnAS(H)CPU	AnUCPU, AnACPU, A2US(H)CPU	A0J2HCPU	CPU not given at left	A273U(H)CPU, A373UCPU	CPU not given at left
Number of connectable GOTs	Max. 3	Max. 3	Max. 1	Max. 2	Max. 3	Max. 2
Total number of GOTs and special function units* ¹ loadable	6 in all	6 in all	2 in all	2 in all	6 in all	2 in all

*1 Indicate the following types of special function units.

AD51(S3), AD51H(S3), AD51FD(S3), AD57G(S3), AJ71C21(S1), AJ71C22(S1), AJ71C23,
AJ71C24(S3/S6/S8), AJ71E71, AJ71UC24, A1SJ71UC24(R2/PRF/R4), A1SJ71E71

3.1.3 Power supply of PLC CPU and GOT

Note the following when supplying power to the PLC CPU and GOT.

**CAUTION**

- To prevent trouble from occurring, the extension cable which connects the PLC CPU and GOT should be unplugged when the PLC CPU and GOT are off.

- (1) Switch on the PLC CPU and GOT in either of the following methods. When several GOTs are connected, either of the following methods should be used.
 - (a) Switch on the PLC CPU and GOT at the same time.
 - (b) Switch on the PLC CPU and GOT in this order.
When several GOTs are connected, there is no specific sequence of switching on the GOTs.
- (2) When you switch power on in the above method (b), switching on the GOT runs the PLC CPU.
When several GOTs are connected, switching on all GOTs runs the PLC CPU.
- (3) When the PLC CPU and GOT are on, switching off the PLC CPU will cause a communication error to occur in the GOT.
When a communication error has occurred, switch off the GOT and switch on the PLC CPU and GOT in the method in above (1).
- (4) If the GOT is switched off during monitoring, the PLC CPU continues running.
- (5) With the PLC CPU on, the bus connection board of the GOT is supplied with a consumptive current (220mA) from the PLC CPU, independently of whether the GOT unit is on or off. Therefore, design the system so that the sum of the 5VDC consumptive currents of the I/O and special function units loaded on the base unit and the consumptive current (220mA) of the bus connection board of the GOT will not exceed the 5VDC rated output current (8A) of the power supply unit.

POINT

The consumptive current will increase as indicated below according to the number of GOTs connected.

- Connection of one GOT Consumptive current (220mA)
- Connection of two GOTs Consumptive current (440mA)
- Connection of three GOTs Consumptive current (660mA)

3.1.4 Restriction when PLC CPU is used in direct method

Note that the inputs X of the empty slots cannot be used when the I/O control system of the PLC CPU to be connected to is the direct method and the GOT is connected as indicated below.

- When a 5m extension cable (AC50B(-R), A1SC50NB) is used to connect the first GOT and main/extension base unit

There are no restrictions when the I/O control system is the refresh method. When the PLC CPU allows the I/O control system to be changed with the switch, use it in the refresh method.

POINT
<p>The following examples indicate how to use the inputs X of the empty slots.</p> <ul style="list-style-type: none">• Inputs X are assigned in a MELSECNET(II/B) data link or MELSECNET/10 network.• The receive data of a MELSECNET/MINI-S3 data link is read to inputs X under the FROM instruction.• The inputs X of the empty slots are switched on/off from a computer link unit.• The inputs X of the empty slots are switched on/off with the touch switch function (bit SET/RST/alternate/momentary) of the GOT.

3.1.5 Precautions for use of A1SJCPU and A1SJHCPU

Note that the GOT cannot be used when an extension base unit is connected to the A1SJCPU or A1SJHCPU.

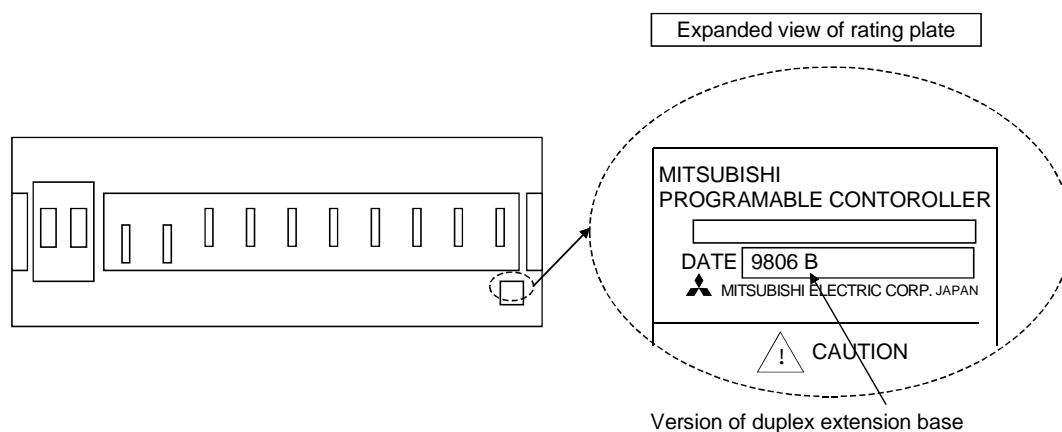
3.1.6 Precautions for GOT connection in duplex system

Note the following when bus-connecting the GOT to the duplex system of the Q4ARCPU.

When connecting the GOT to a duplex system, connect the GOT to the duplex extension base (A68RB) in the last stage of the duplex system.

Also, use the duplex extension base of version B or later.

For the way of confirming the version of the duplex extension base, refer to the DATE column of the rating plate applied to the portion show below.



POINT

The GOT will not operate properly in the following system configurations.

- The GOT is bus-connected to the duplex main base (A32RB, A33RB)
- The GOT is bus-connected to the duplex extension base (A68RB) of version A

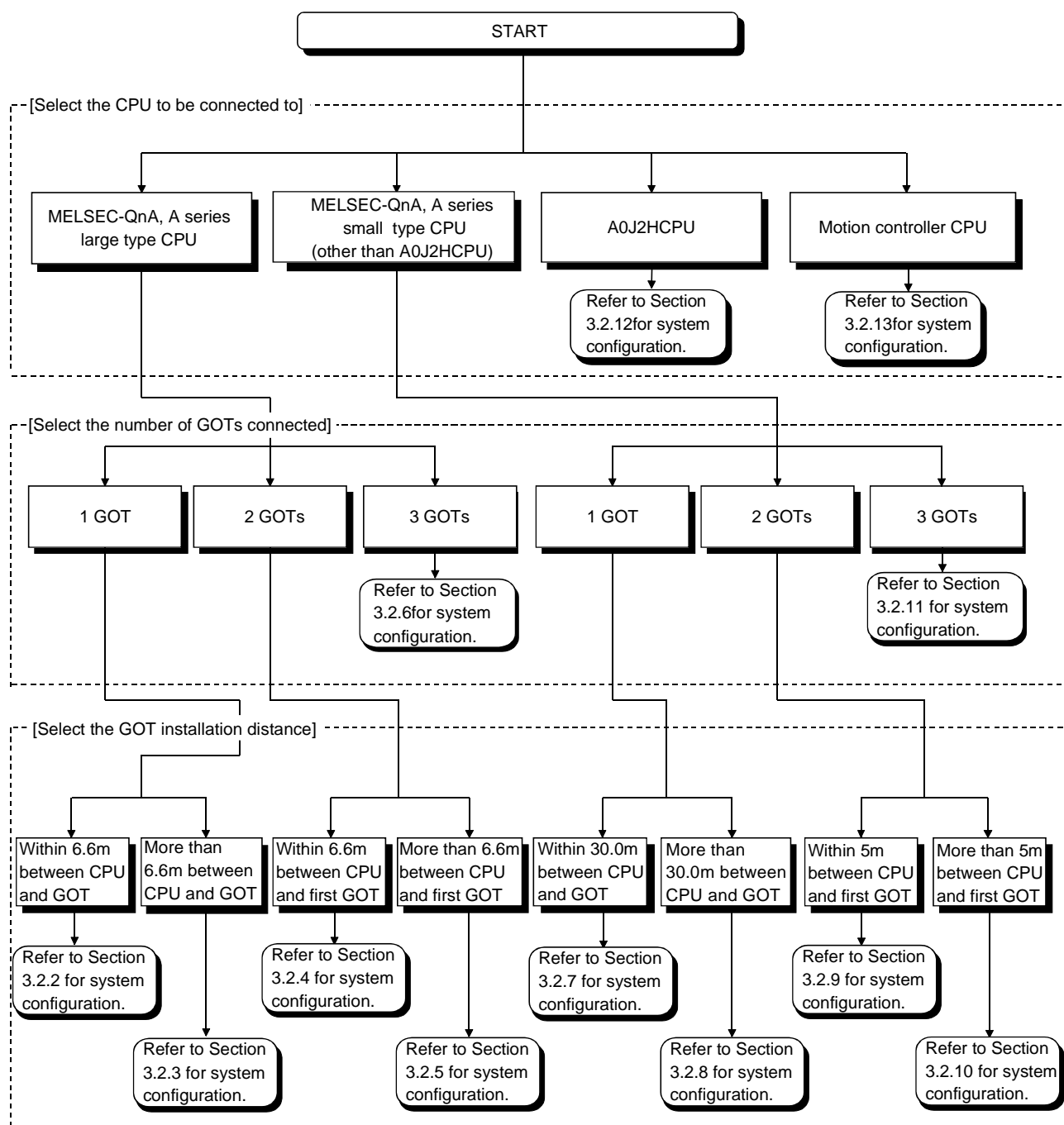
3.2 System configuration

3.2.1 System configuration selection procedure

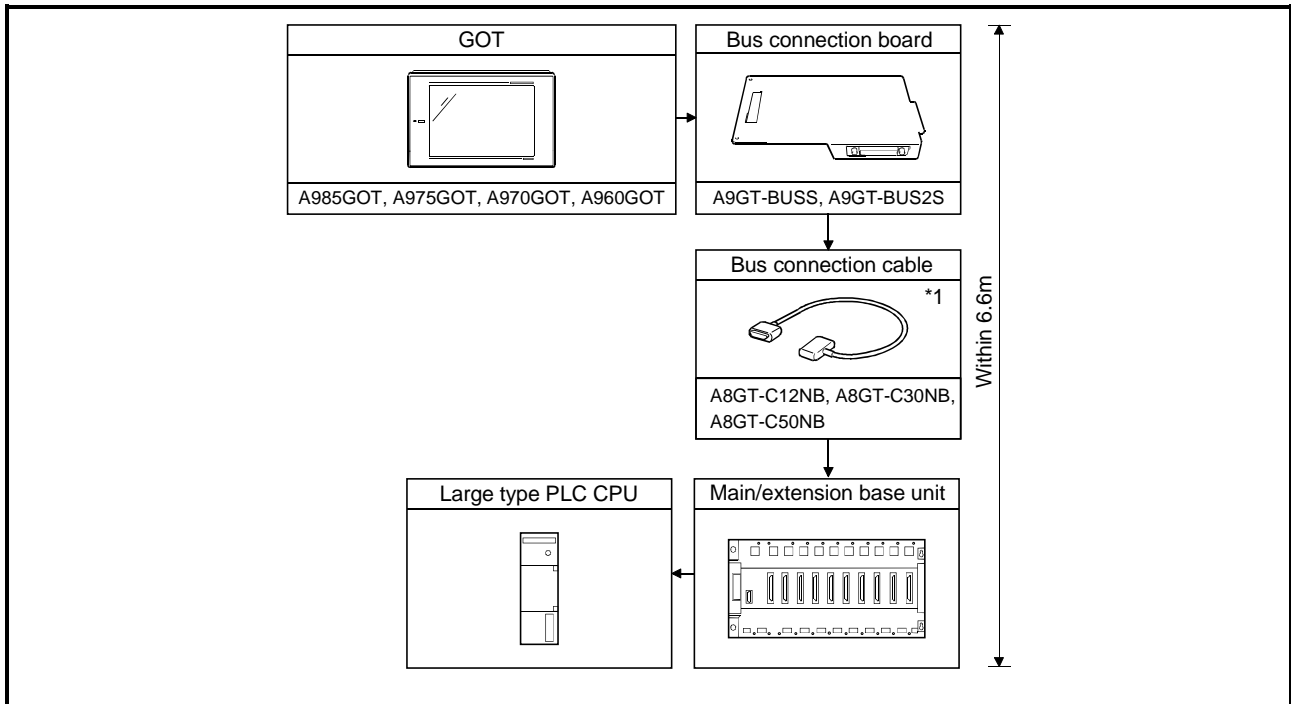
Bus connection is roughly classified into 12 different system configurations.

The system configuration must be selected according to such conditions as the CPU to be connected to, the number of GOTs connected, and GOT installation distance.

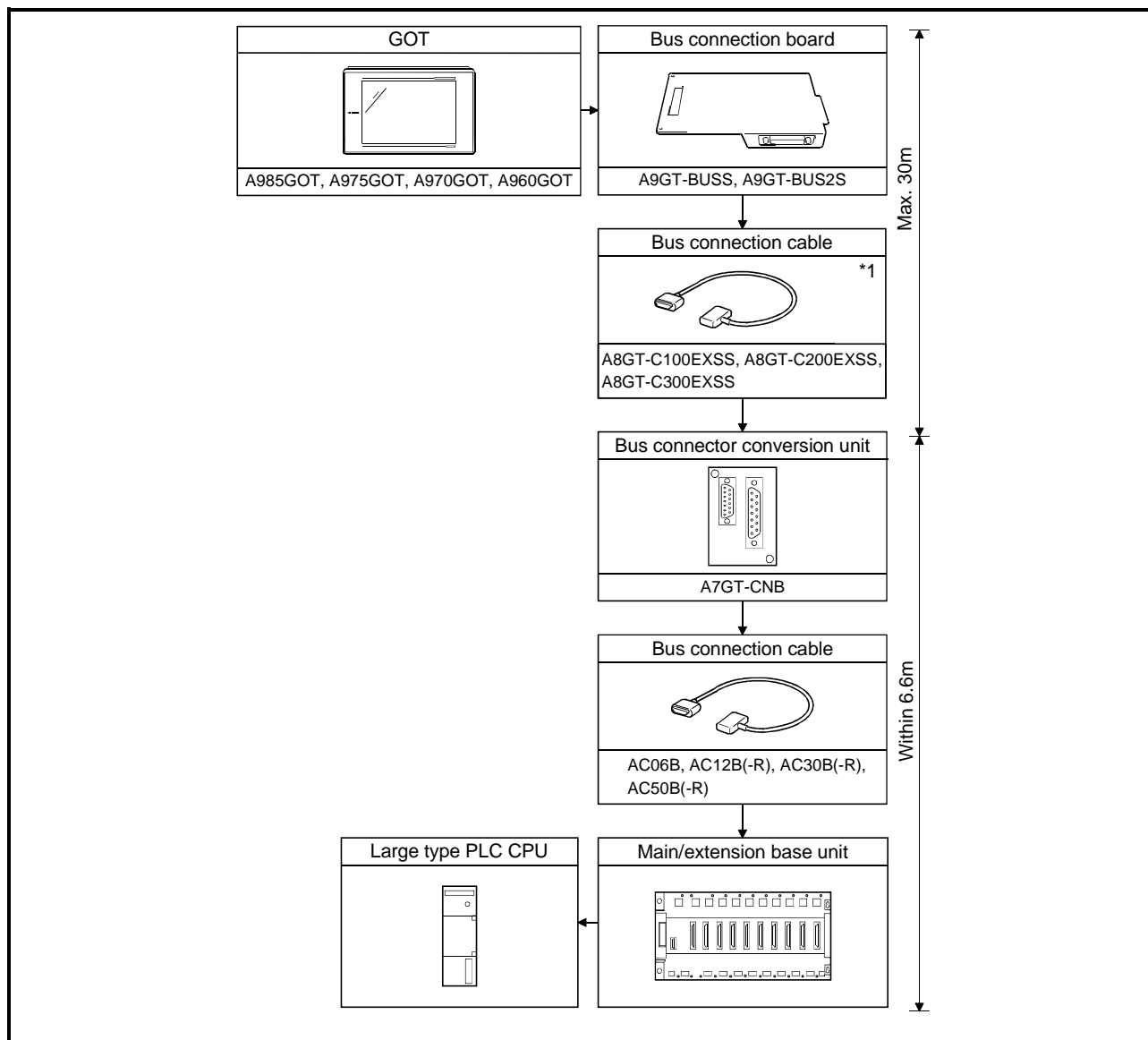
This section explains the procedure of selecting the system configuration.



3.2.2 Large type CPU/one GOT/within 6.6m between CPU and GOT



3.2.3 Large type CPU/one GOT/more than 6.6m between CPU and GOT

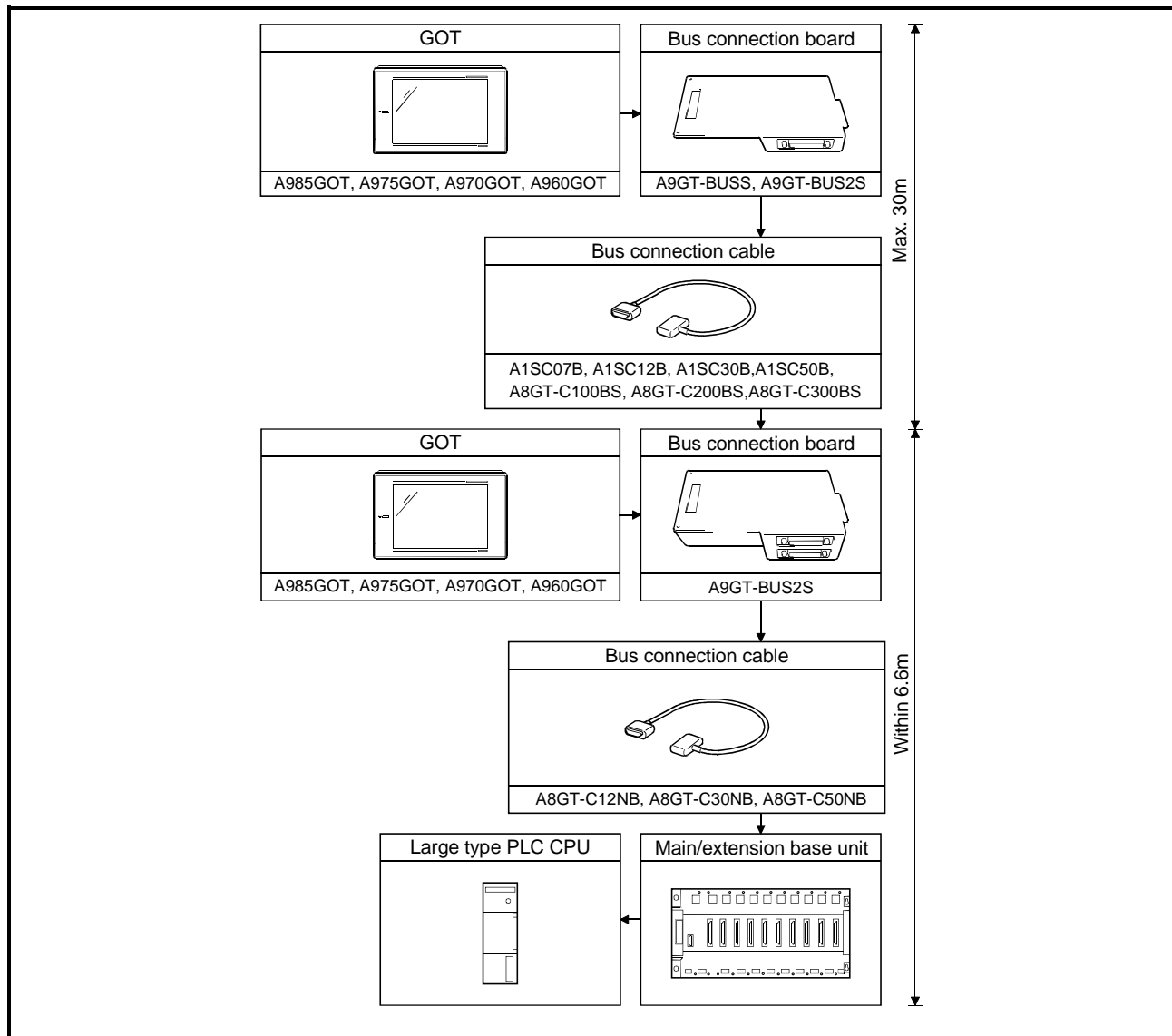


*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

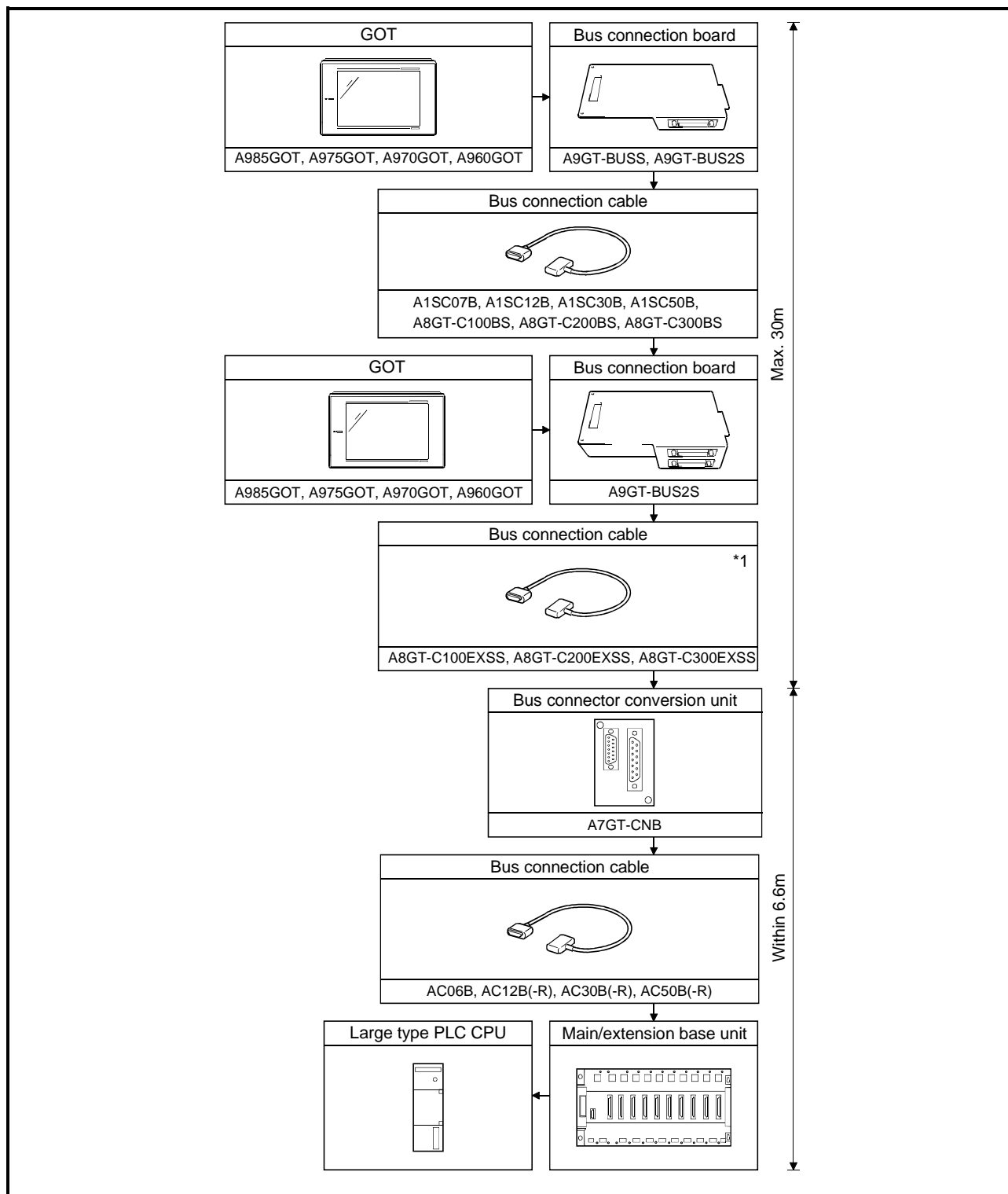
Connector "COM1" PLC CPU side

Connector "COM2" GOT side

3.2.4 Large type CPU/two GOTs/within 6.6m between CPU and first GOT



3.2.5 Large type CPU/two GOTs/more than 6.6m between CPU and first GOT

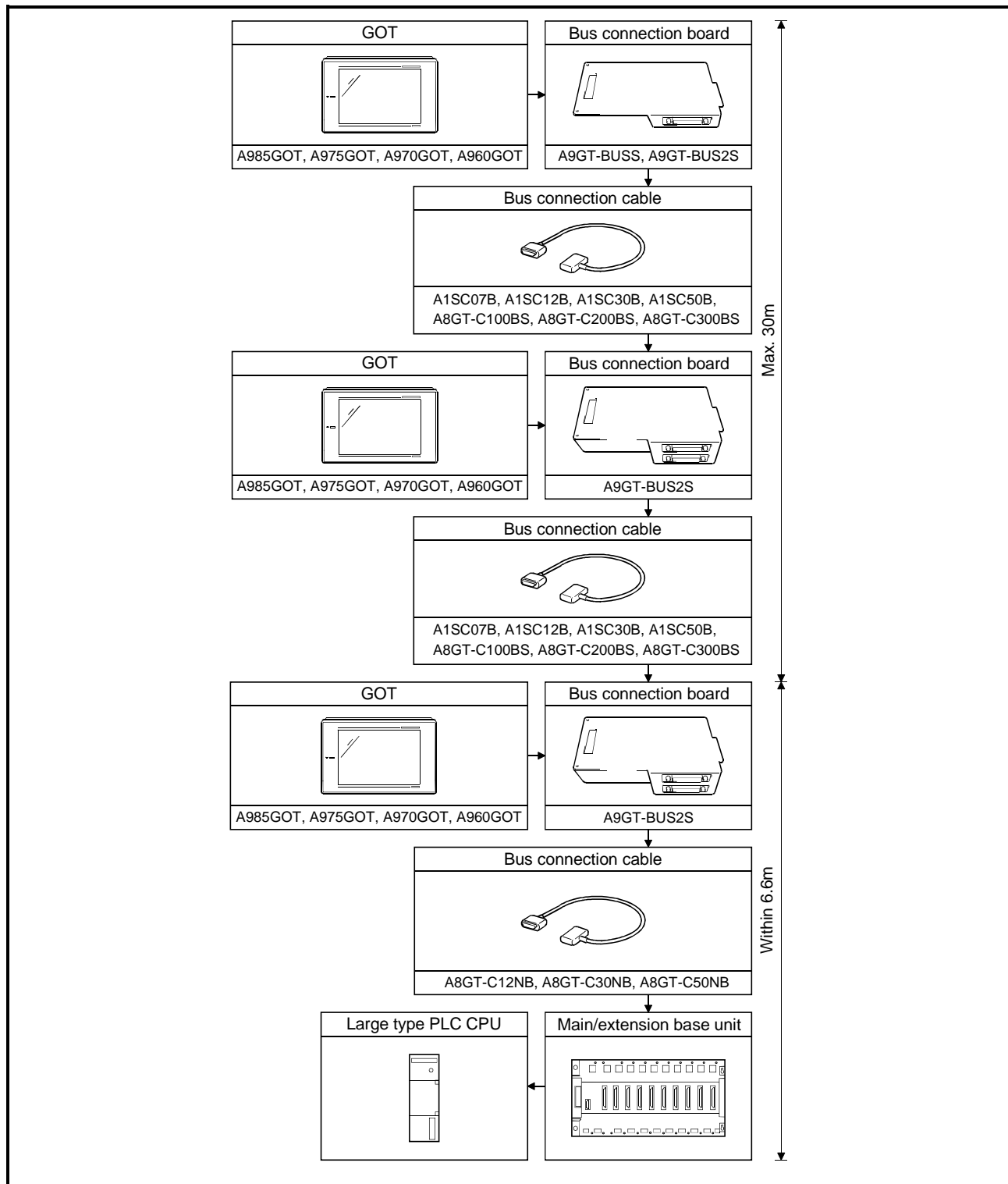


*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

Connector "COM1" PLC CPU side

Connector "COM2" GOT side

3.2.6 Large type CPU/three GOTs

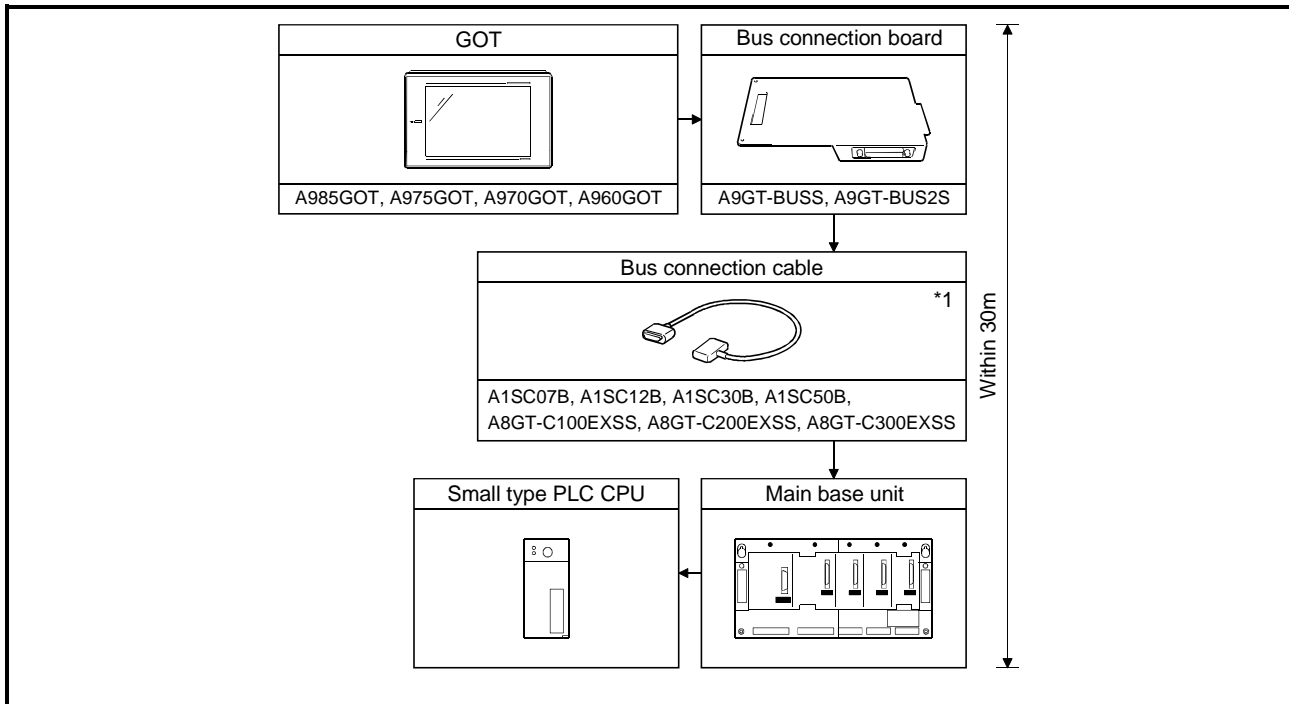


*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

Connector "COM1" PLC CPU side

Connector "COM2" GOT side

3.2.7 Small type CPU/one GOT/within 30m between CPU and GOT

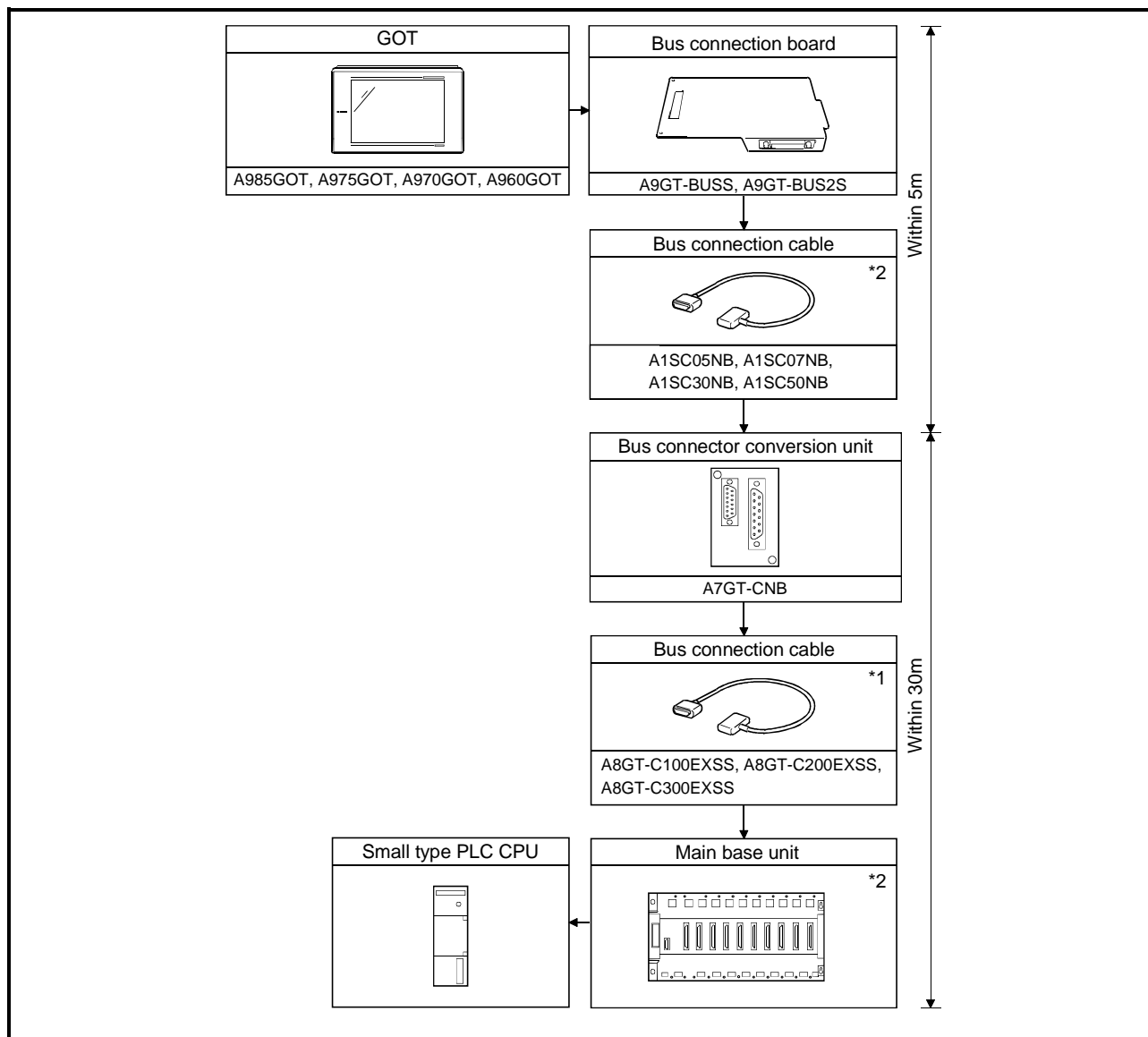


*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

Connector "COM1"PLC CPU side

Connector "COM2" GOT side

3.2.8 Small type CPU/one GOT/more than 30m between CPU and GOT



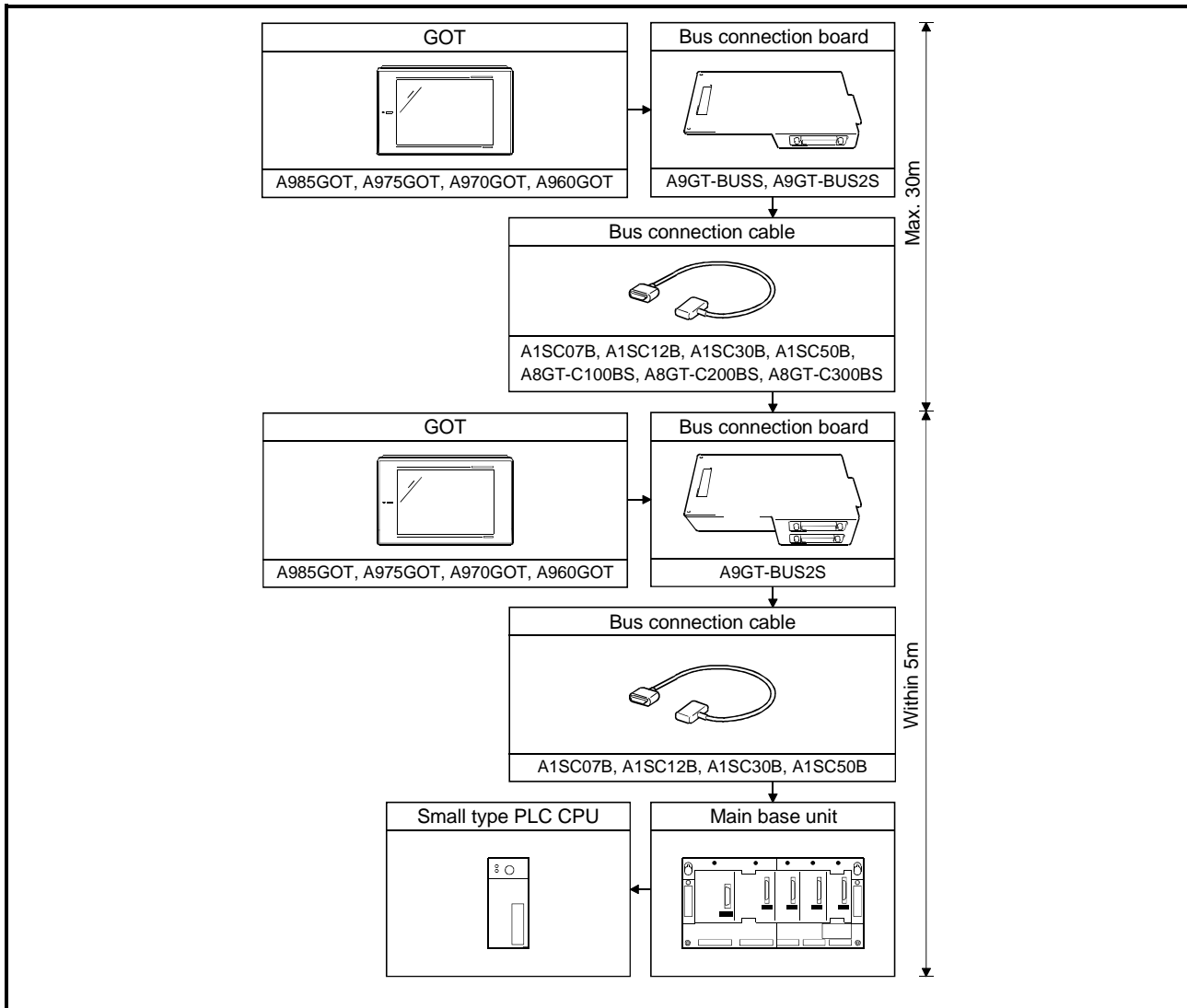
*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

Connector "COM1" PLC CPU side

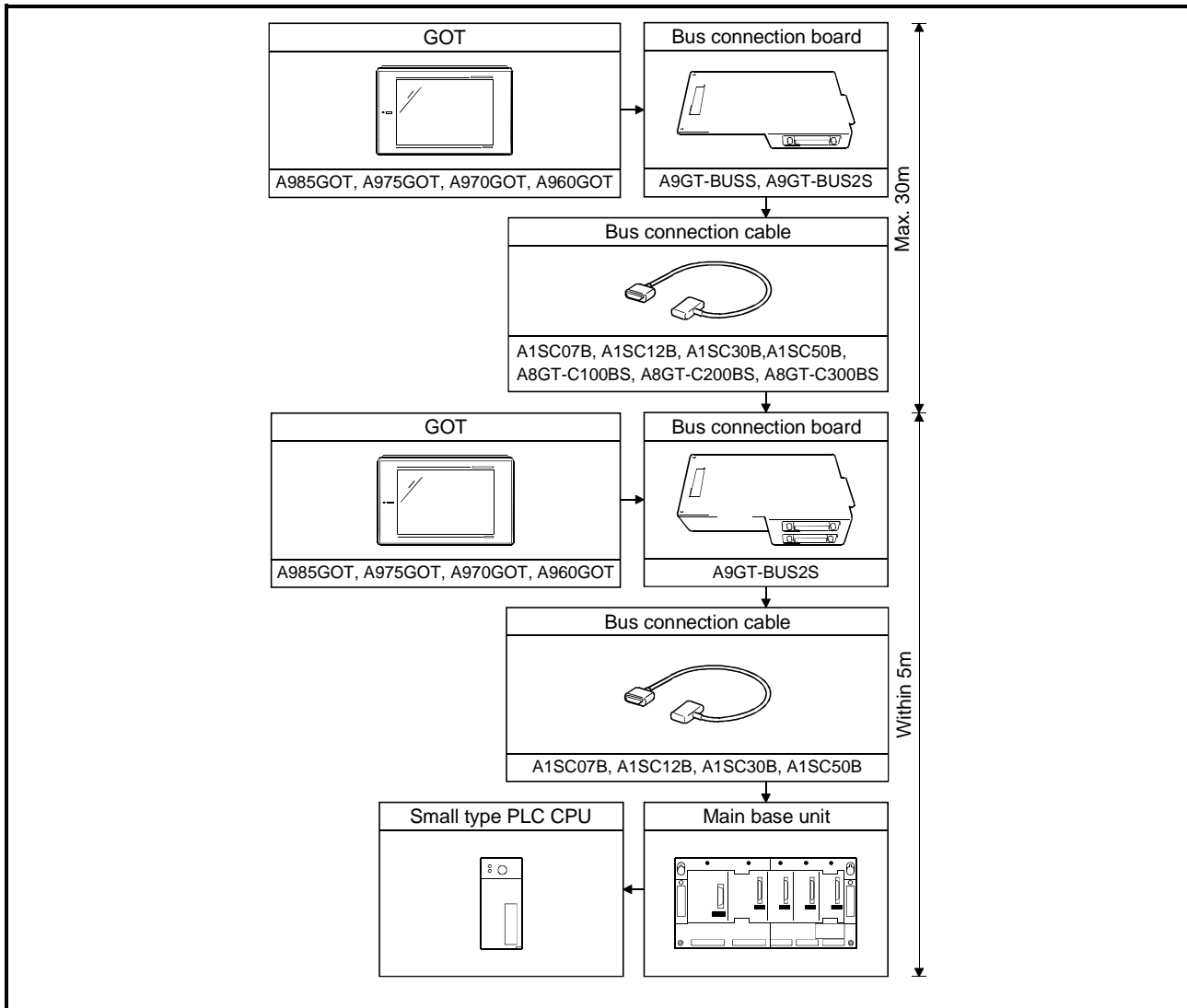
Connector "COM2" GOT side

*2 When an extension base unit is connected to the PLC CPU (main base unit), the total cable length of the extension cable (between main base unit and extension base unit) and bus connection cable (between bus connection board and bus connector conversion unit) should be within 6m.

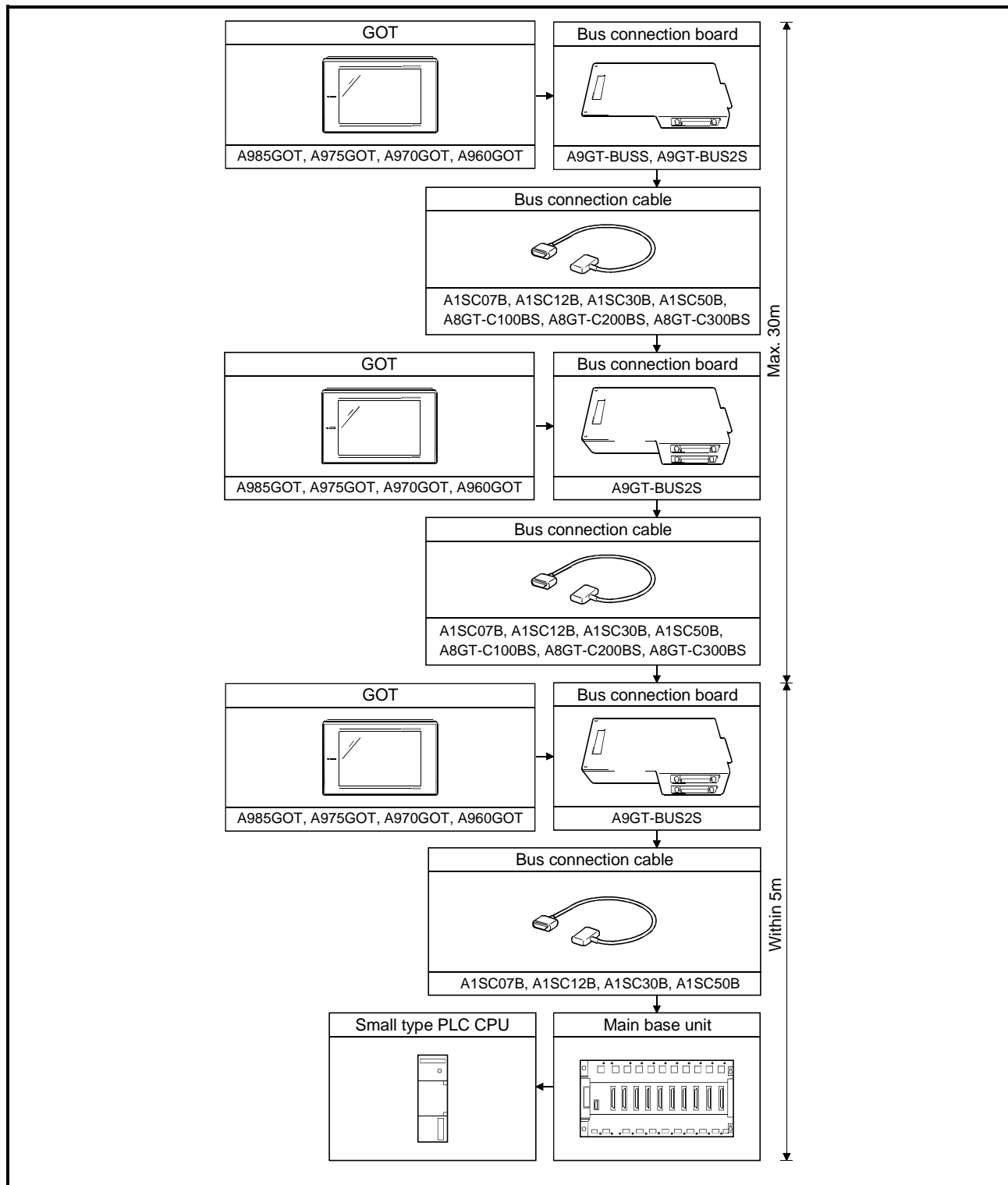
3.2.9 Small type CPU/two GOTs/within 5m between CPU and first GOT



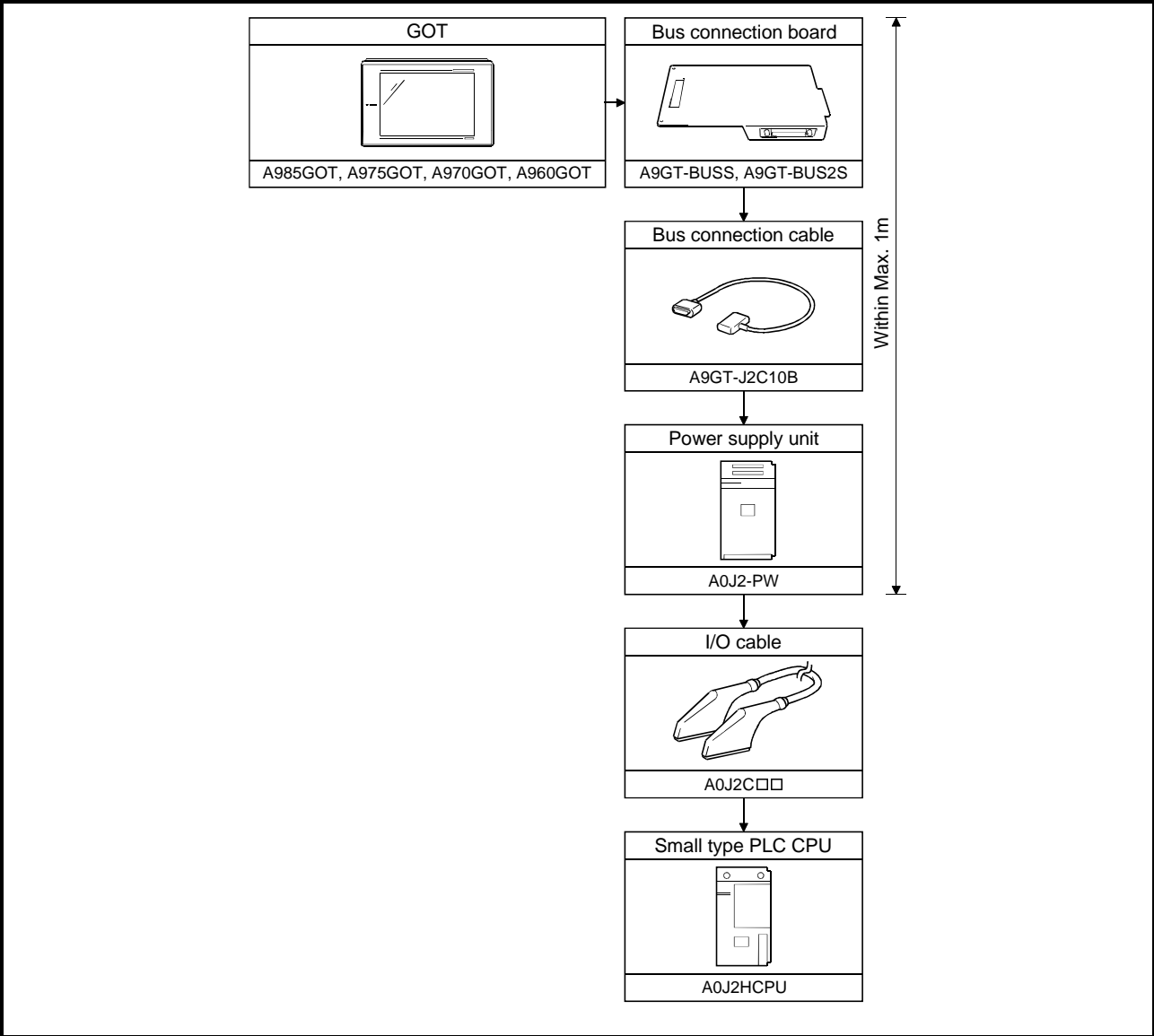
3.2.10 Small type CPU/two GOTs/more than 5m between CPU and first GOT



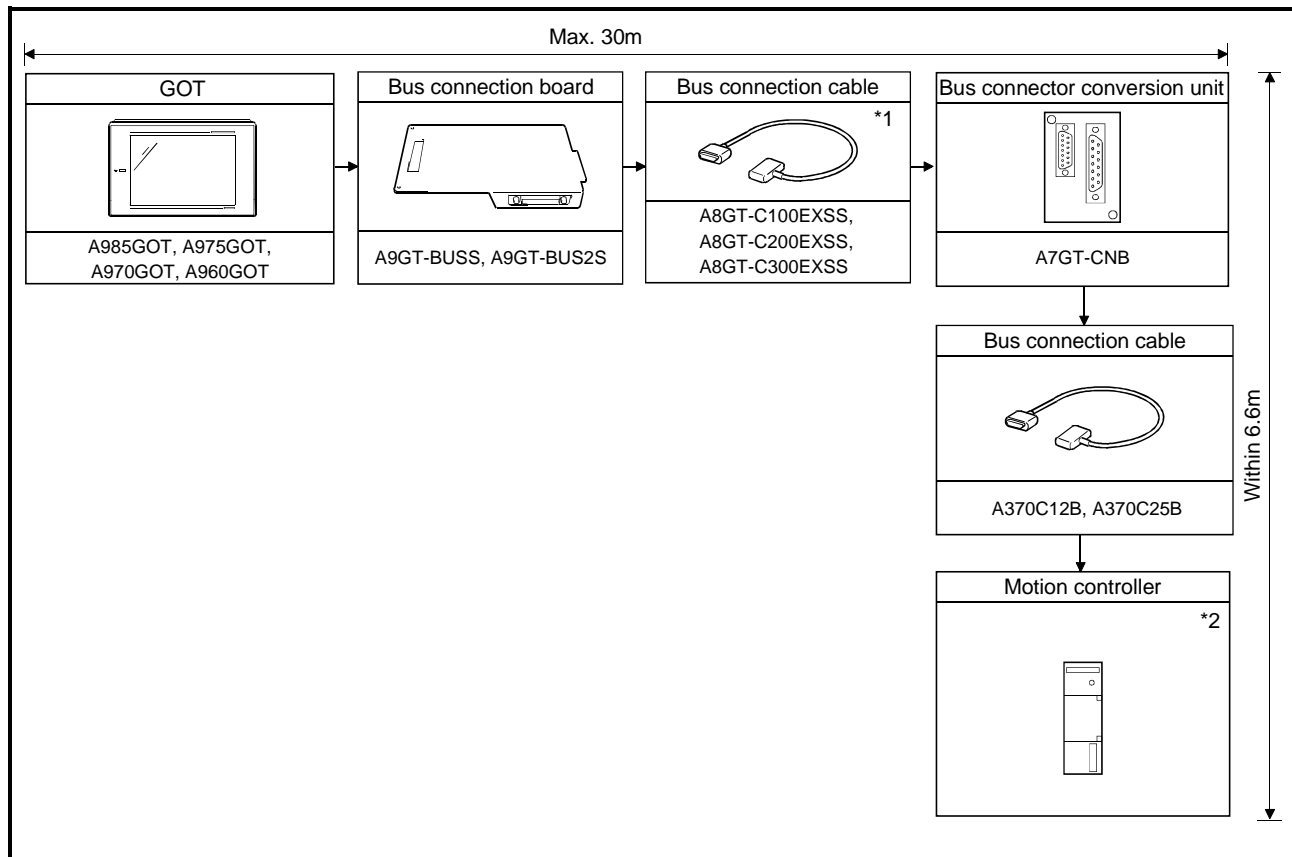
3.2.11 Small type CPU/three GOTs



3.2.12 A0J2HCPU



3.2.13 Motion controller CPU



*1 When using the bus connection cable (A8GT-C100EXSS, A8GT-C200EXSS, A8GT-C300EXSS), plug the connectors of the connection cable as follows.

Connector "COM1"Motion controller side

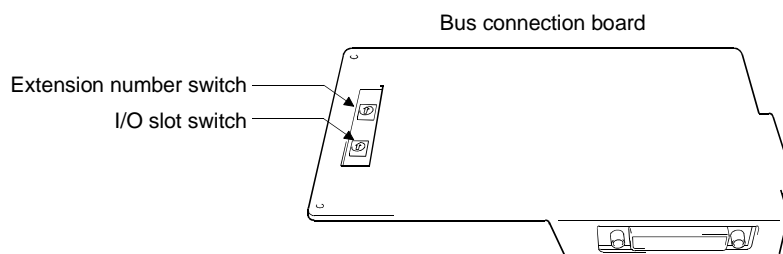
Connector "COM2"GOT side

*2 Connect the bus connection cable to the connector dedicated to PLC extension.

3.3 Switch setting of bus connection board

In bus connection, the GOT must be assigned to an empty I/O slot on the extension base unit.

For this assignment, use the extension number switch and I/O slot switch of the bus connection board loaded to the GOT.

Extension number switch

Set the extension number of the empty I/O slot to which the GOT will be assigned.

1 to 7 : Set the extension number.

0, 8, 9 : Must not be used.

I/O slot switch

Set the empty I/O slot number to which the GOT will be assigned.

0 to 7 : Set the empty I/O slot number.

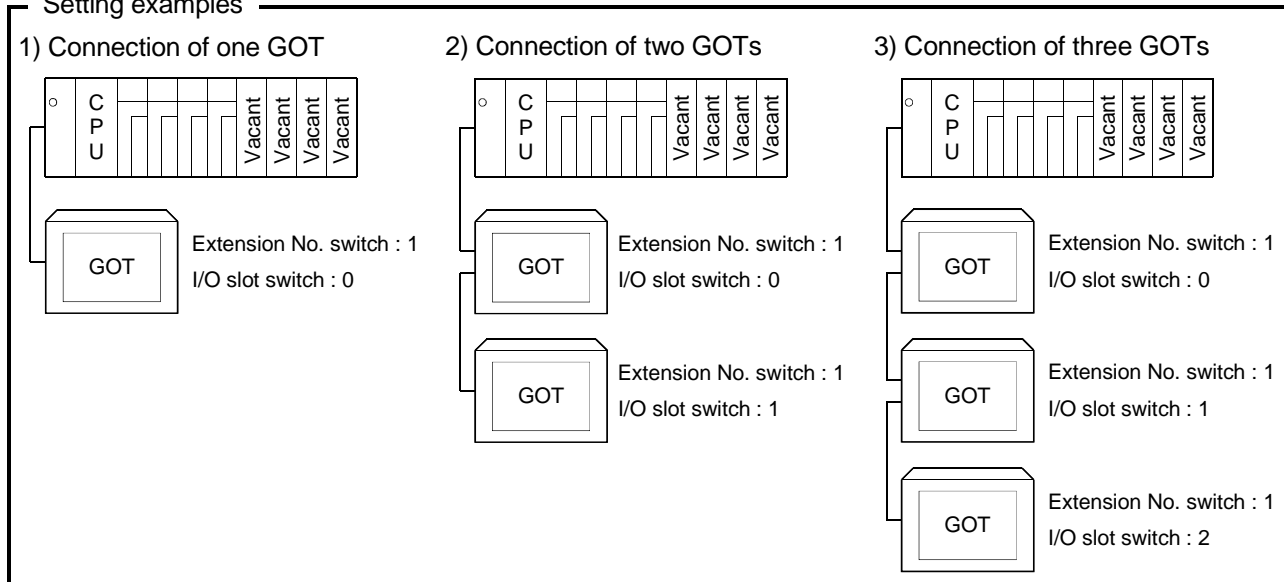
8, 9 : Must not be used.

POINT

You cannot assign the GOT to the empty I/O slot on the main base.
Therefore, even in a system which does not use the extension base, always allocate the GOT to a vacant I/O slot on the extension base (slot having the vacant points within the maximum I/O points of the PLC CPU, with the exception of those of the standard base).

- (1) Setting method used when there is no extension base unit connected
 Since the GOT cannot be assigned to an empty slot on the main base, make setting to assign it to the empty slot of the first extension if there is no extension base unit connected.

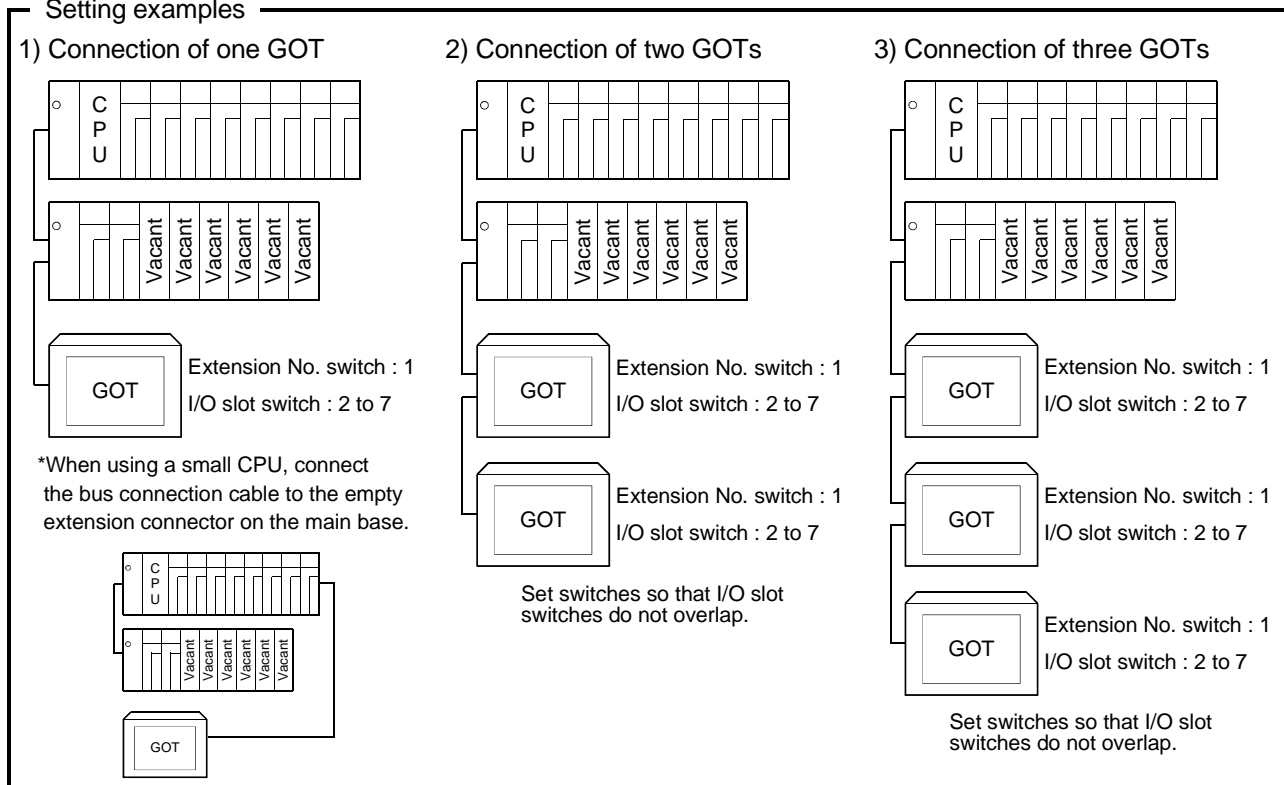
Setting examples



- (2) Setting method used for assignment of GOT(s) to empty slot(s) of extension base unit
 Set the extension number(s) and slot number(s) of the empty slot(s) to be assigned to.

Note that the following setting examples assume the use of a large CPU but the same method applies to the use of a small CPU.

Setting examples



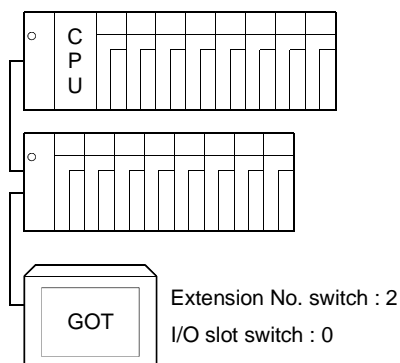
- (3) Setting method used when there are no empty slots on the extension base unit connected

When there are no empty I/O slots on the base unit, set the extension number switch(es) and I/O slot switch(es) as indicated below.

Note that the following setting examples assume the use of a large CPU but the same method applies to the use of a small CPU.

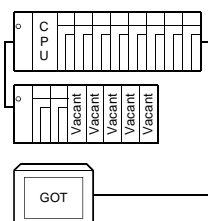
Setting examples

1) Connection of one GOT

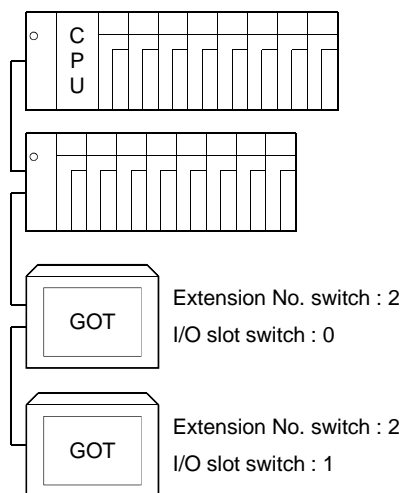


32 vacant I/O points of the PLC CPU are required.

* When using small CPU:
Connect the bus connection cable to the vacant extension connector on the standard base.

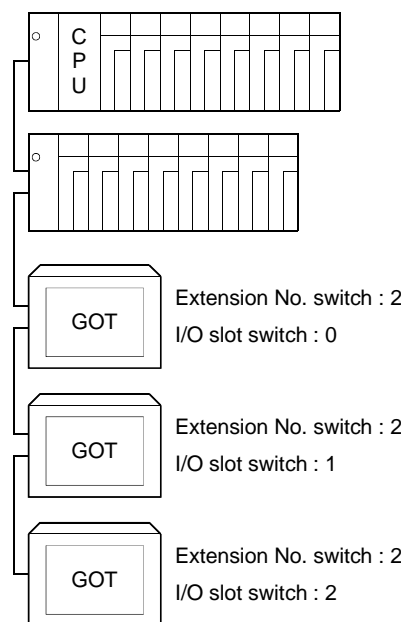


2) Connection of two GOTs



64 vacant I/O points of the PLC CPU are required.

3) Connection of three GOTs



96 vacant I/O points of the PLC CPU are required.

POINT

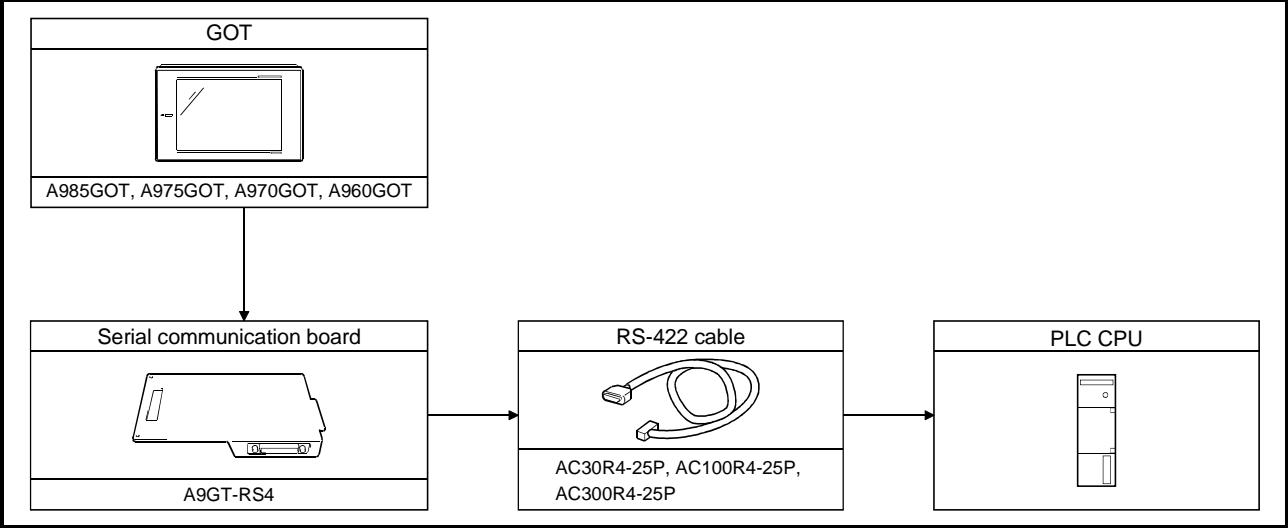
When using the Q3ACPU, Q4A(R)CPU, A3□ CPU, A4UCPU or A0J2HCPU, the above setting cannot be made.

Empty I/O slots are always needed on the extension base unit.

Also, when using the A0J2HCPU, assign the GOT(s) to I/O slot(s) 0 to 3 of the first extension.

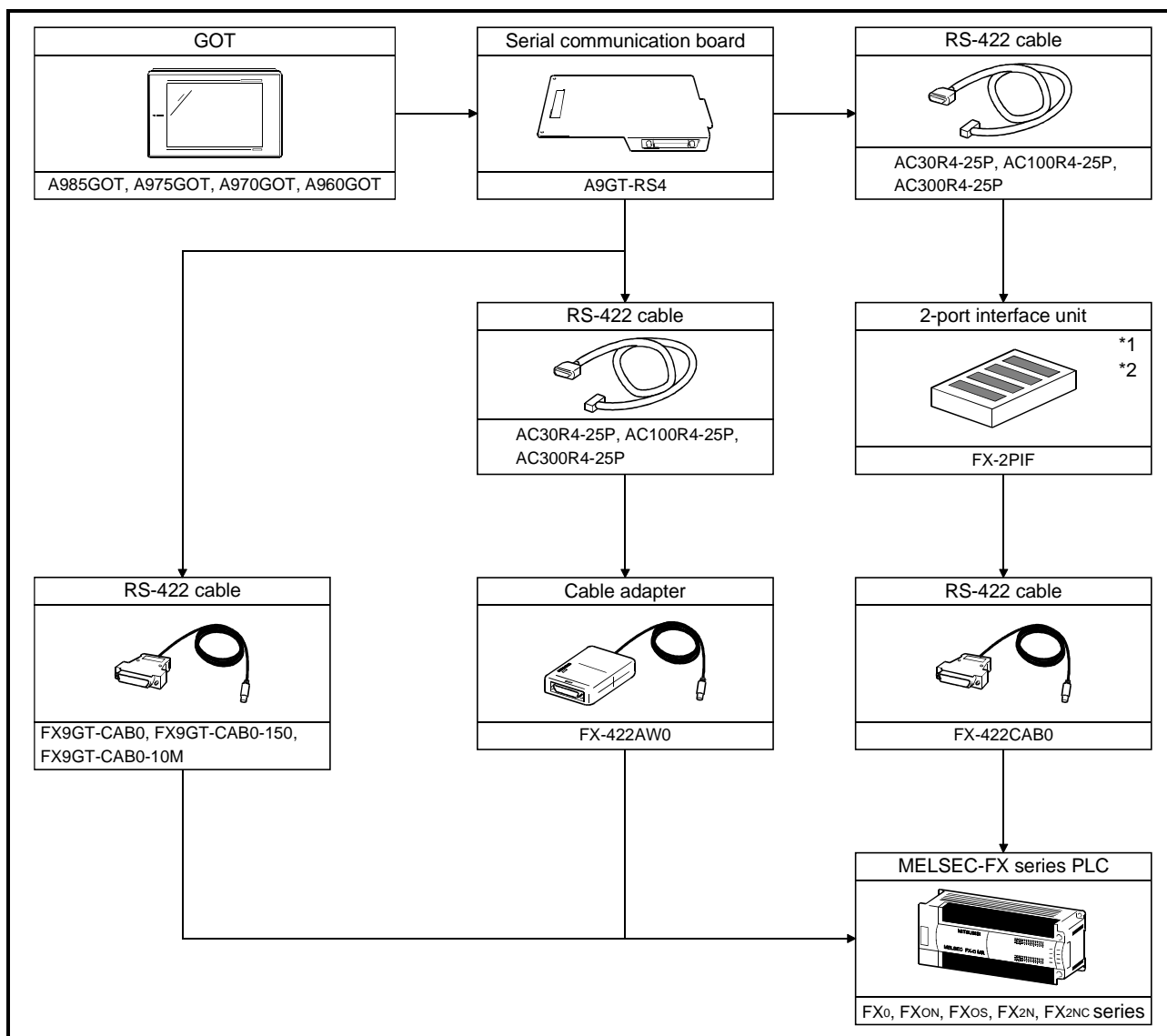
Chapter4 Direct connection to CPU

4.1 System configuration of MELSEC-QnA and A connection

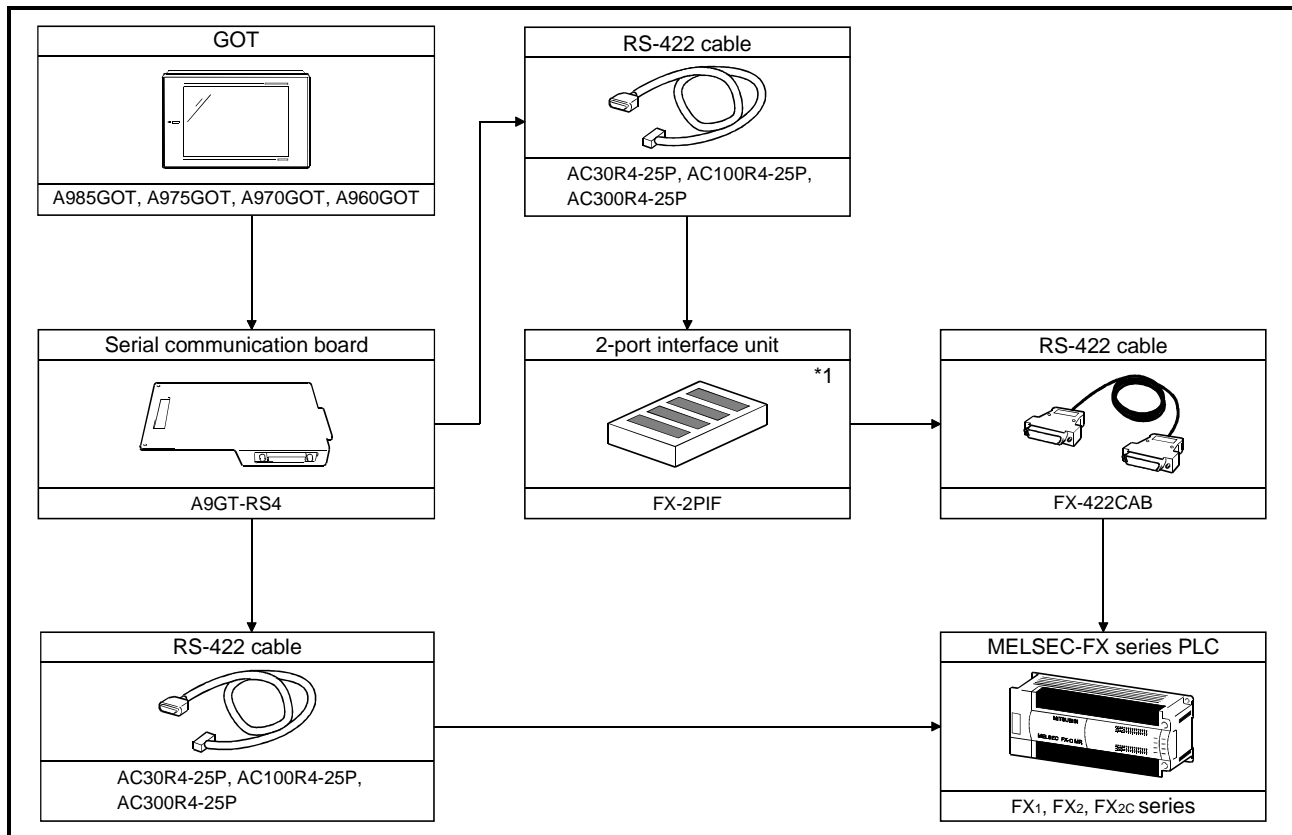


4.2 System configuration of MELSEC-FX connection

(1) When connecting to FX0, FX0N, FX0S, FX2N, FX2NC series



(2) When connecting to FX1, FX2, FX2C series



*1 Use FX-2PIF when connecting the GOT with the peripheral devices for MELSEC-FX series (A6GPP, A6PHP, A7GPP, A7PHP, etc.).

For available models and system configuration when connecting the peripheral devices for MELSEC-FX series, refer to the instruction manual of the MELSEC-FX series PLC.

MEMO

[illegible]

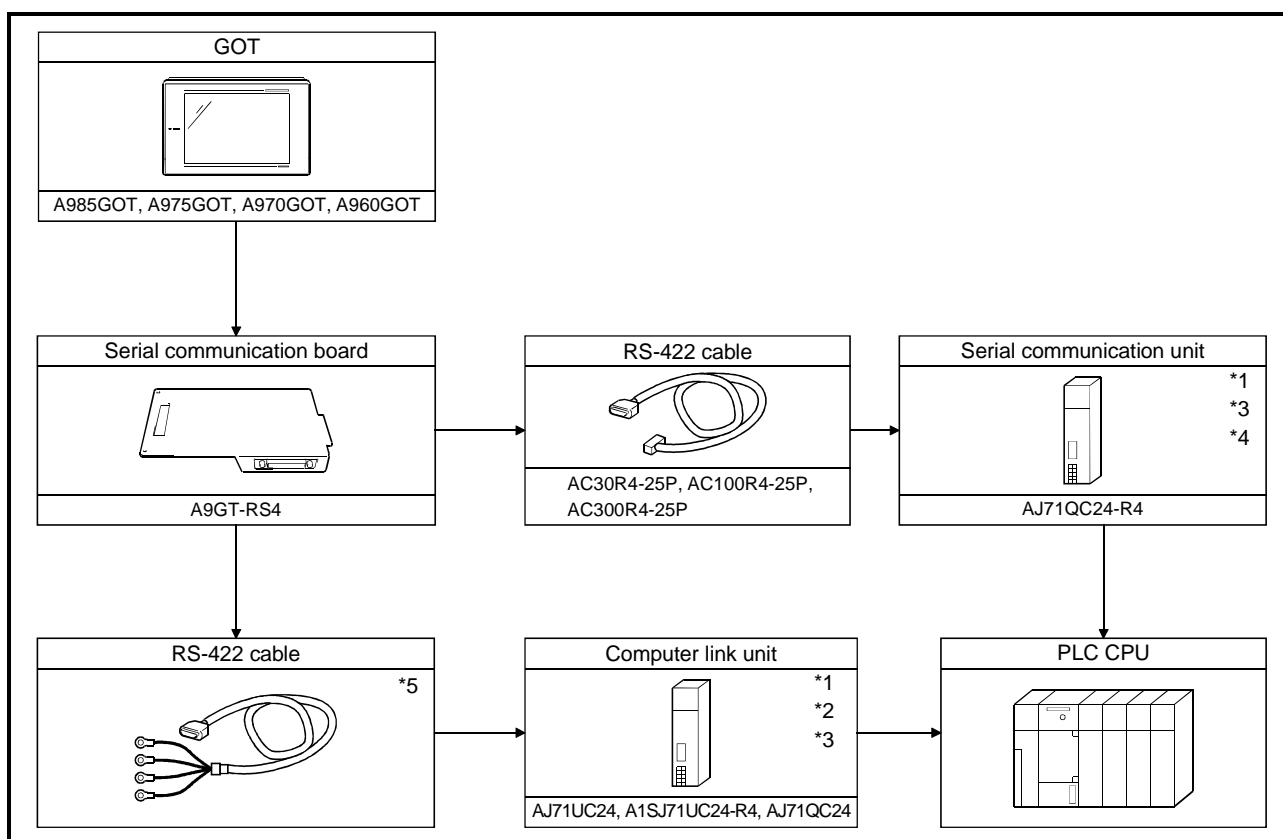
Chapter5 Computer link connection (RS-422 communication)

The computer link connection (RS-422 communication) has the following features.

- Since this method allows one-to-one connection between the computer link unit and the GOT, multiple GOT units can be connected according to the number of computer link units loaded to the PLC CPU.
- While monitoring the GOT, a peripheral device for GPP function can be connected to the RS-422 connector on the PLC CPU for debugging of the PLC program.

5.1 System configuration

5



*1 For system configuration of the computer link unit and the serial communication unit, refer to the user's manuals of the computer link unit and the serial communication unit respectively.

*2 When connecting the GOT and the computer link unit, it is not necessary to connect a terminator to the computer link unit.

*3 AJ71UC24 and AJ71QC24-R4 mounted to the remote I/O station of the MNET/10 cannot be connected to the GOT for monitoring.

*4 When connecting the GOT via AJ71QC24-R4, designate the protocol of AJ71QC24-R4 to GPP mode (Protocol 5).

*5 RS-422 cable must be prepared by the customer.

For details of preparation, refer to 5.3.

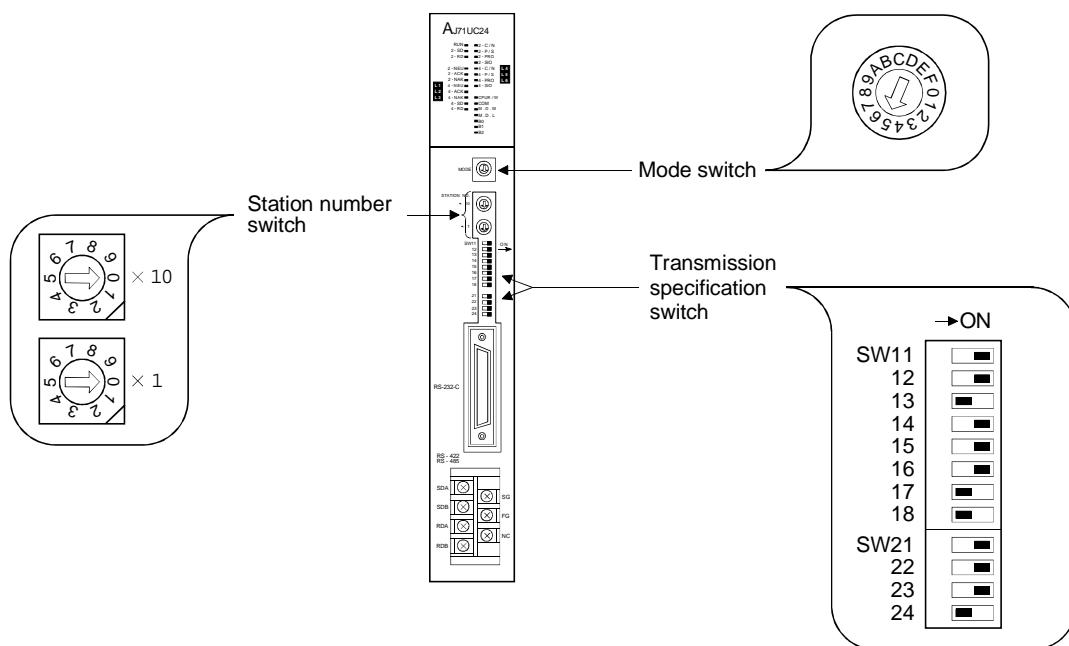
5.2 Switch setting of computer link unit and serial communication unit

When connecting the GOT, the computer link unit and the serial communication unit for monitoring, set the switches of the computer link unit and the serial communication unit (mode switch, transmission specification switch) as follows:

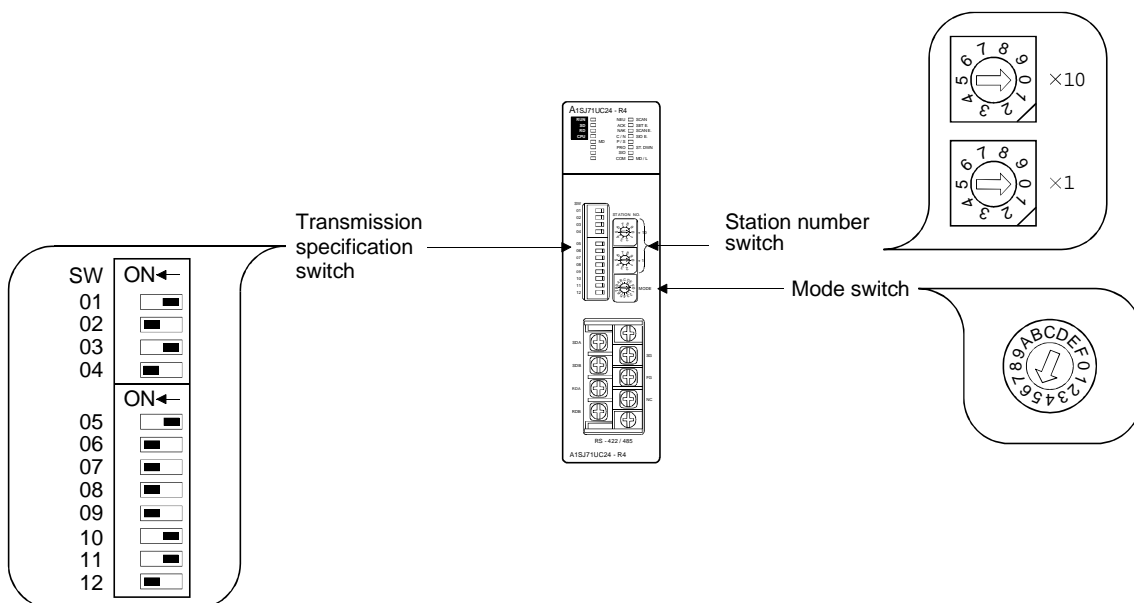
Transmission specification :

- 1) Transmission speed : 19200 bps 2) Data bit : 8 3) Parity bit : Present (Odd)
- 4) Stop bit : 1 5) Sum check : Present

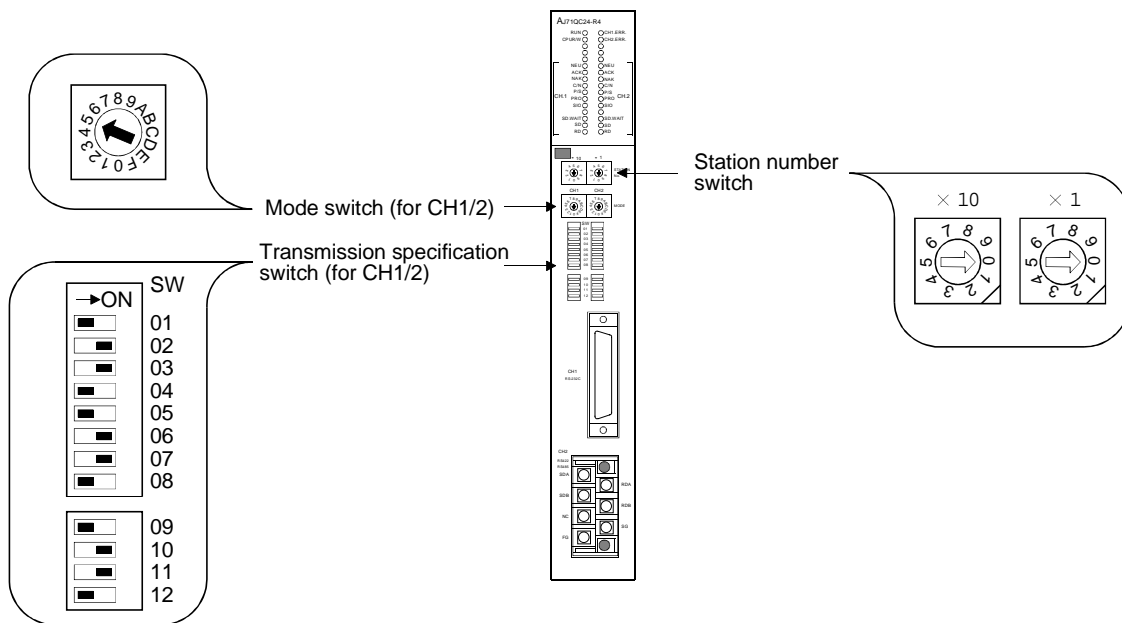
(1) When connecting to AJ71UC24



(2) When connecting to A1SJ71UC24-R4



(3) When connecting to AJ71QC24 (-R4)

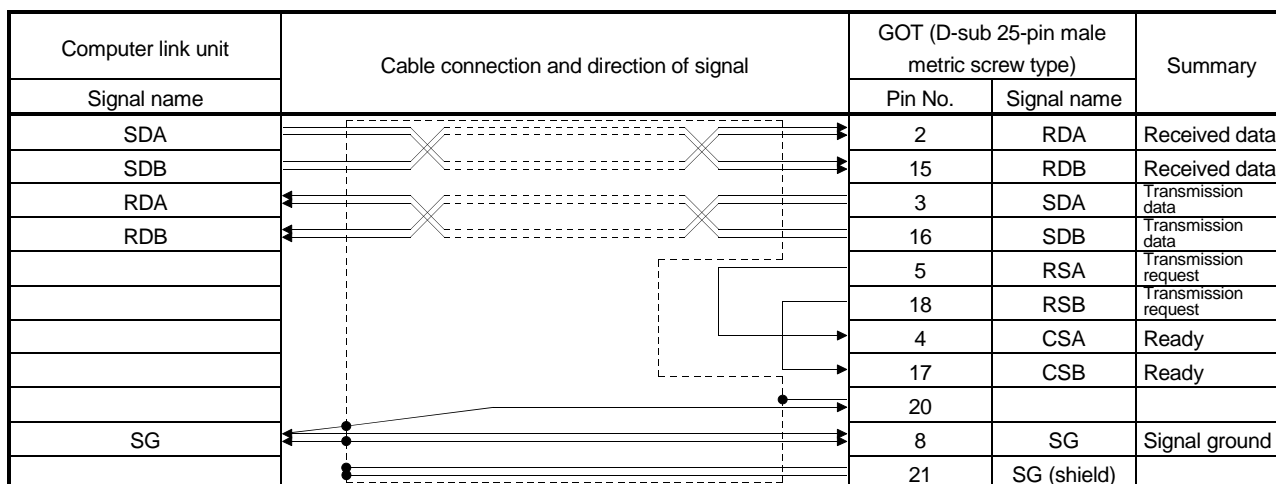


5.3 Connection cable

RS-422 cable to connect the GOT and the computer link unit must be prepared by the user.

The RS-422 cable connection diagram and the connector are as follows:

(1) Connection diagram



(2) Connector, crimp terminal and cable

No.	Description	Model	Manufacturer
1)	Connector with cover	17JE-23250-02(D8A6)	DDK
2)	Round-type crimp terminal (recommended part)	V1.25-M4	Nippon Crimping Terminal
3)	20-core shield cable (recommended part)	RF VV-SB-24×20	Toyokuni Power Cables

(3) Precautions for cable preparation

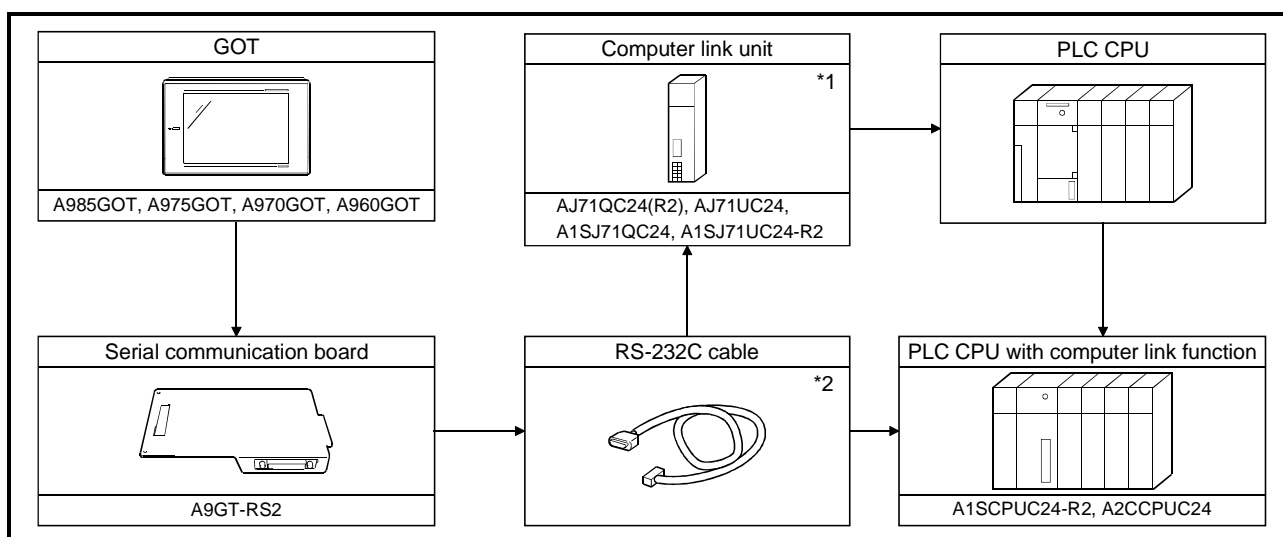
- The cable must be 200 m (656.17 feet) or shorter.
- When using 2) and 3) in the above table for preparing the cable :
If one electric wire is used, the wire may come off the crimp terminal. Therefore, connect 2 wires as described in connection diagram (1).

Chapter6 Computer link connection (RS-232C communication)

The computer link connection (RS-232C communication) has the following features.

- Since this method allows one-to-one connection between the computer link unit and the GOT, multiple GOT units can be connected according to the number of computer link units loaded to the PLC CPU.
- While monitoring the GOT, the peripheral device for GPP function can be connected to the RS-422 connector on the PLC CPU for debugging of the PLC program.

6.1 System configuration



*1 For system configuration of the computer link unit, refer to the user's manuals of the computer link unit.

*2 RS-232C cable must be prepared by the user.

For details of preparation, refer to 6.3.

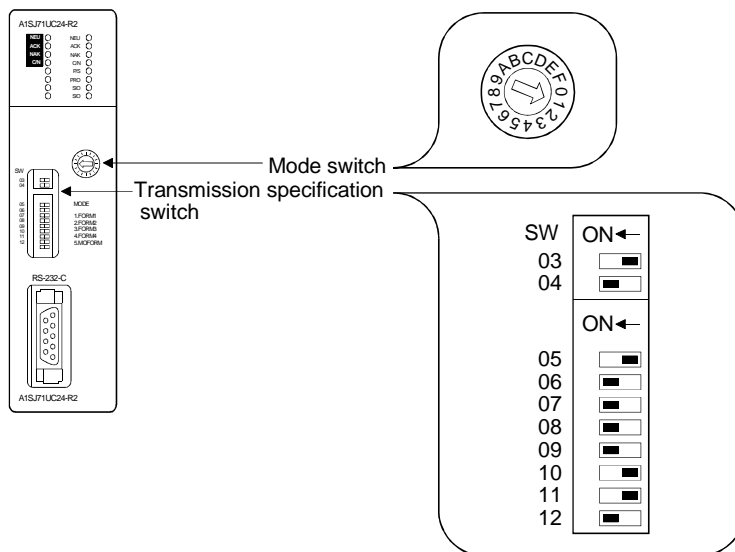
6.2 Switch setting of computer link unit

When connecting the GOT and the computer link unit for monitoring, set the switches of the computer link unit (mode switch, transmission specification switch) as follows :

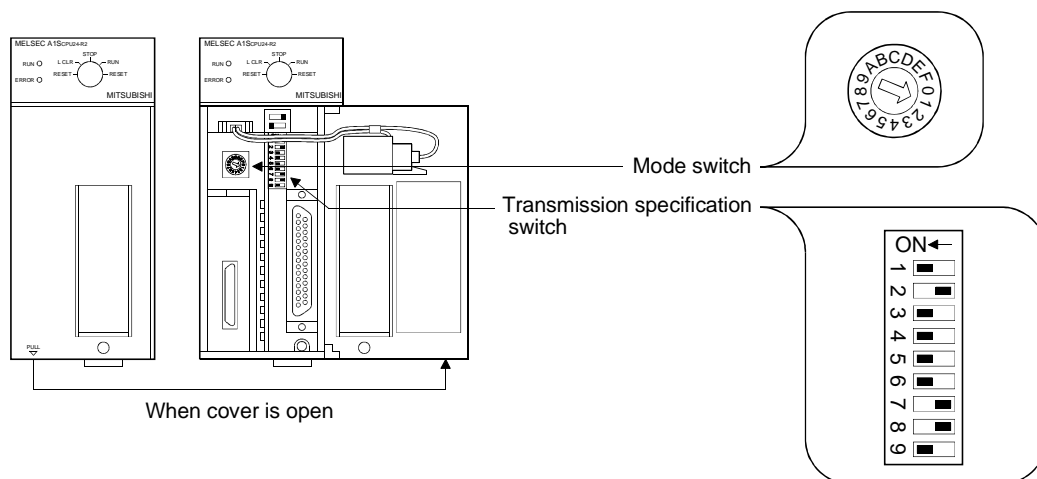
Transmission specification :

- 1) Transmission speed : 19200 bps 2) Data bit : 8 3) Parity bit : Present (Odd)
- 4) Stop bit : 1 5) Sum check : Present

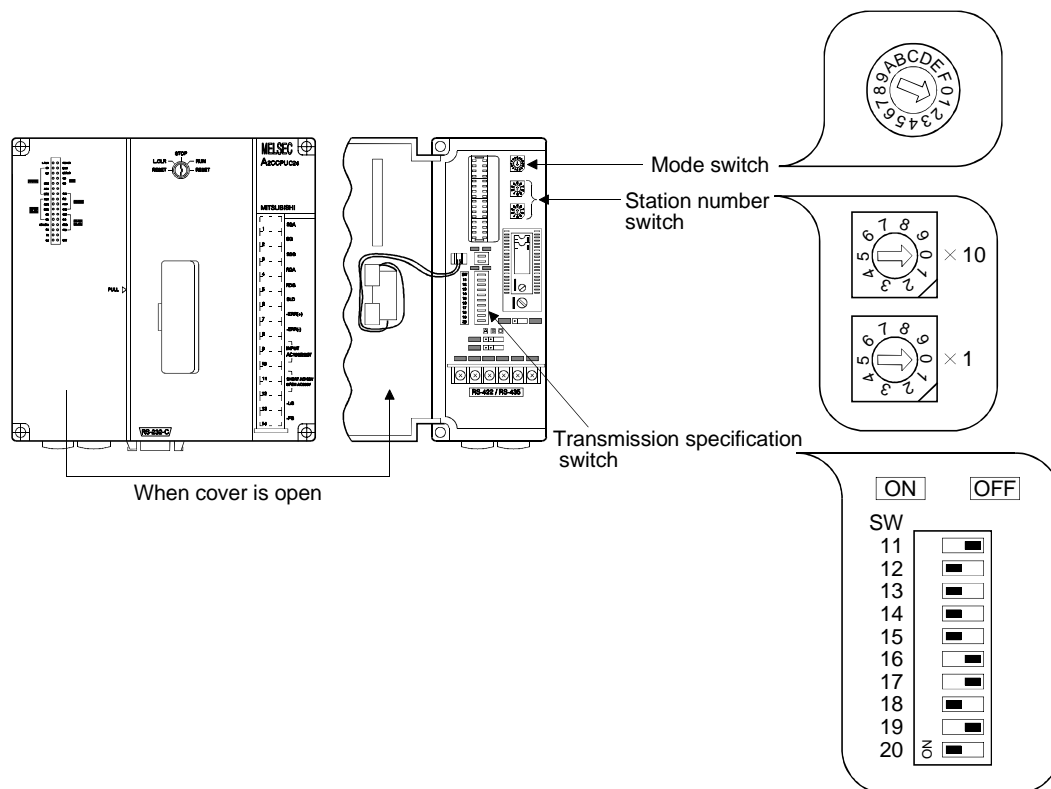
(1) When connecting to A1SJ71UC24-R2



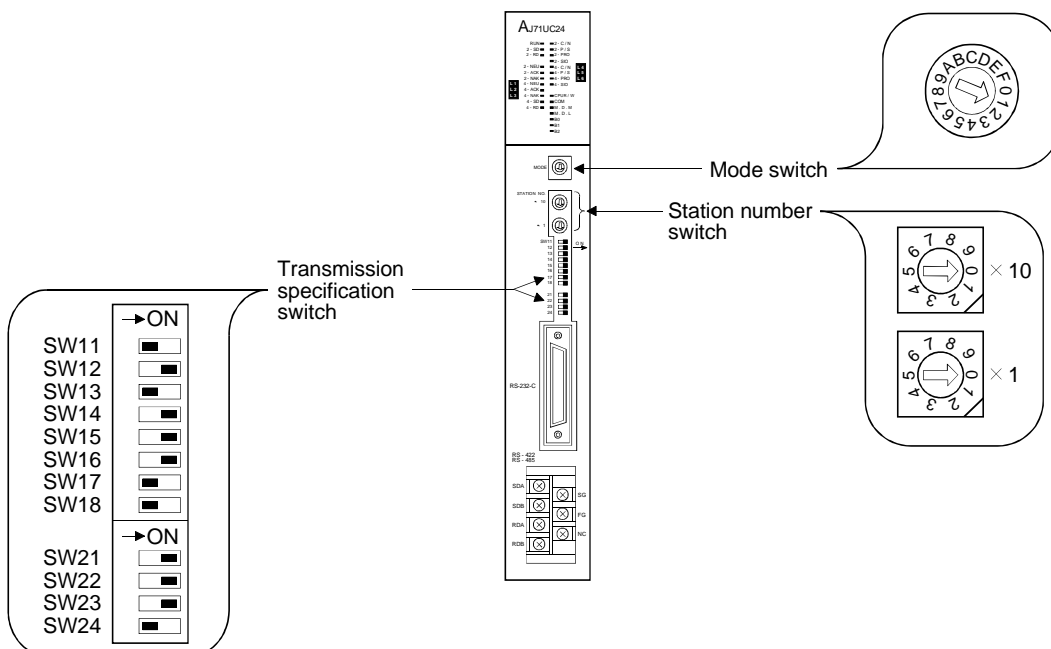
(2) When connecting to A1SCPUC24-R2



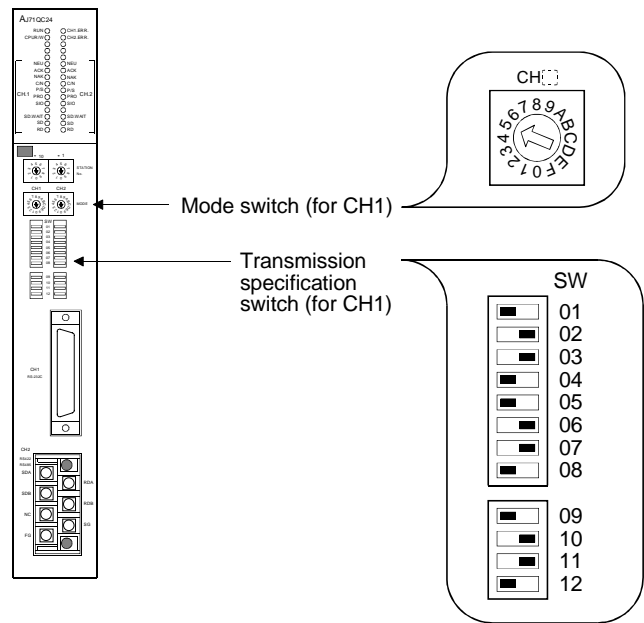
(3) For A2CCPUC24



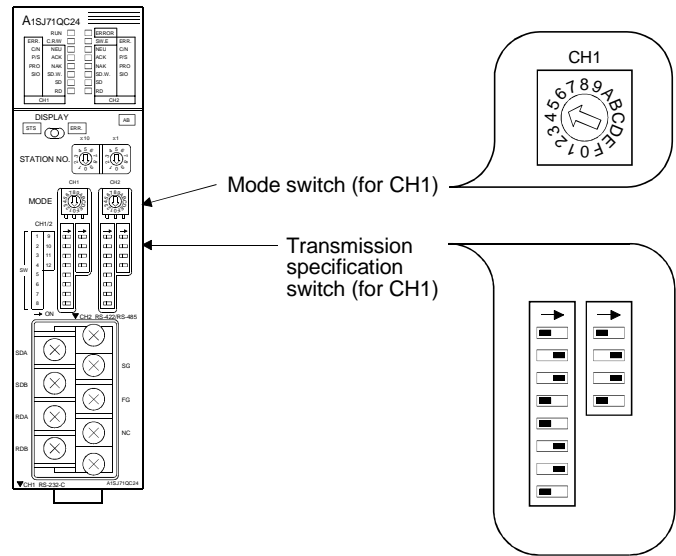
(4) For AJ71UC24



(5) For AJ71QC24 (R2)



(6) For A1SJ71QC24



6.3 Connection cable

The RS-232C cable used to connect the GOT, the computer link unit and PLC CPU with computer link function must be prepared by the user.

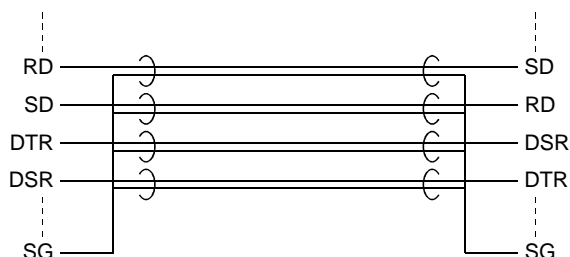
The RS-232C cable connection diagram and the connector are as follows:

(1) Connection diagram

- (a) If D-sub 9-pin is used for the connector of the computer link unit
(A1SJ71QC24 (R2), A1SJ71UC24-R2, A1SJ71C24-R2, A1SCPUC24-R2, A2CCPUC24)

Computer link unit		Cable connection and direction of signal	GOT	
Signal name	Pin No.		Pin No.	Signal name
CD	1		1	CD
RD(RXD)	2		2	RD(RXD)
SD(TXD)	3		3	SD(TXD)
DTR(ER)	4		4	DTR(ER)
SG ^{*1}	5		5	SG
DSR(DR)	6		6	DSR(DR)
RS(RTS)	7		7	RS(RTS)
CS(CTS)	8		8	CS(CTS)
—	9			—

^{*1} If monitoring is hindered by external noise in A1SJ71QC24 (R2) connection, connect each cable for signals other than SG and FG together with the cable for SG.



- (b) If D-sub 25-pin is used for connector of the computer link unit
(AJ71QC24 (R2), AJ71UC24)

Computer link unit		Cable connection and direction of signal	GOT	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
DSR(DR)	6		6	DSR(DR)
SG	7		7	RS(RTS)
CD	8		8	CS(CTS)
DTR(ER)	20		9	—

(2) Connector and connector cover

- GOT connector

Use the connector matching the following model for the GOT.

9-pin D-sub (male) inch screw type

Manufactured by DDK

17LE-23090-27 (D3CC)

- Connector of Computer link unit

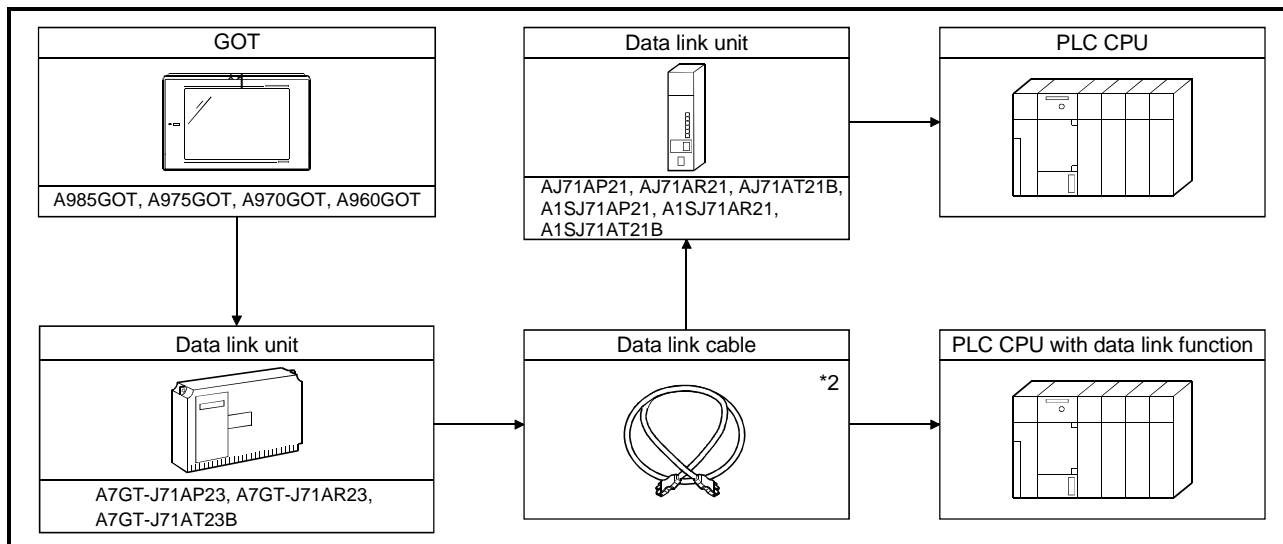
Refer to the user's manual of the computer link unit.

(3) Precautions for cable preparation

The cable must be 15 m (49.21 feet) or shorter.

Chapter7 MELSECNET connection (data link system)

7.1 System configuration



*1 The maximum number of GOT units that allow connection is the number of stations in each data link system that allow connection.

*2 For further details of data link cables (optical fiber cable, coaxial cable, twisted pair cable), refer to the reference manuals of MELSECNET or MELSECNET/B data link system.

7.2 Switch setting of data link unit

Describes about switch setting for using the data link unit.

(1) Station number switch

Since the data link unit is for local stations only, set the switch as follows :

MNET(II) : Stations 1 to 64 (0 : master station is not available)

MNET/B : Stations 1 to 31 (0 : master station is not available)

(2) Mode switch

When using the data link, set this switch to ONLINE.

(3) Baud rate switch (only for MNET/B)

Set the baud rate to the same level as designated for the master station.

7.3 Self-diagnosis test

Self-diagnosis test checks the hardware of the data link unit and for breakage of the link cable.

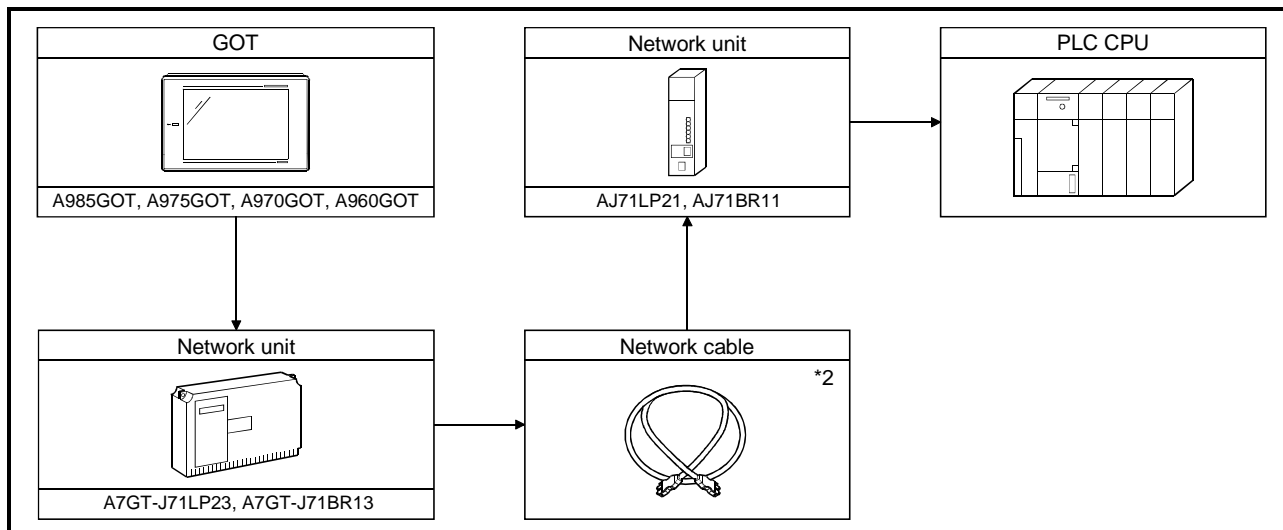
By using the mode switch of the data link unit, the following three modes can be selected.

For test procedures and analysis of the results, refer to the reference manuals of MELSECNET or MELSECNET/B data link system.

Switch setting	Description	Contents
5	Station-to-station test mode (Main station)	This mode checks the line between 2 stations. The station with more recent number is set as the main station and the one with older number as sub-station.
6	Station-to-station test mode (Sub station)	
7	Self-turning test	This mode checks the hardware including transmission/reception circuit by using a single data link unit.

Chapter8 MELSECNET connection (network system)

8.1 System configuration



*1 The maximum number of GOT units that allow connection is the number of stations in each data link system that allow connection.

*2 For further details of data link cables (optical fiber cable, coaxial cable, twisted pair cable), refer to the reference manual of MELSECNET or MELSECNET/B data link system.

8.2 Switch setting of network unit

Describes about switch setting for using the data link unit.

(1) Network No. switch

Designates the network number connected to the network unit.

(2) Group No. switch

Designates the desired group number to incorporate the network unit.

If no group is designated, set this switch to 0.

(3) Station number switch

Designates the network unit as follows. Setting differs between optical loop system and coaxial bus system.

Optical loop system (When using A7GT-J71LP23) : Stations 1 to 64

Coaxial bus system (When using A7GT-J71BR13) : Stations 1 to 32

(4) Mode switch

When using network, set this switch to ONLINE.

8.3 Self-diagnosis test

Self-diagnosis test checks the hardware of the data link unit and for breakage of the link cable.

By using the mode switch of the data link unit, the following 10 modes can be selected.

For test procedures and analysis of the results, refer to the reference manual of MELSECNET/10 network system.

Switch setting	Description	Contents
3	Loop test (Main loop)	Checks lines after all stations are connected. Stations other than test object is set to ONLINE before the check. (Only for optical loop system)
4	Loop test (Sub loop)	
5	Station-to-station test mode (Main station)	Checks the line between 2 stations. The station with more recent number is set as the main station and the one with older number as sub-station.
6	Station-to-station test mode (Sub-station)	
7	Self-turning test	Checks the hardware including transmission/reception circuit by using a single network unit.
8	Internal self-turning test	Checks the hardware including transmission/reception circuit by using a single network unit.
9	Hardware test	This mode checks the hardware in the network unit.
D	Network No. confirmation	Confirms the network number, group number, and station number designated for the network.
E	Network No. confirmation	
F	Station No. confirmation	

Chapter9 CC-Link connection

For system configuration and precautions of monitoring by CC-Link connection, refer to the user's manual of the CC-Link communication unit (A8GT-J61BT13 or A8GT-J61BT15).

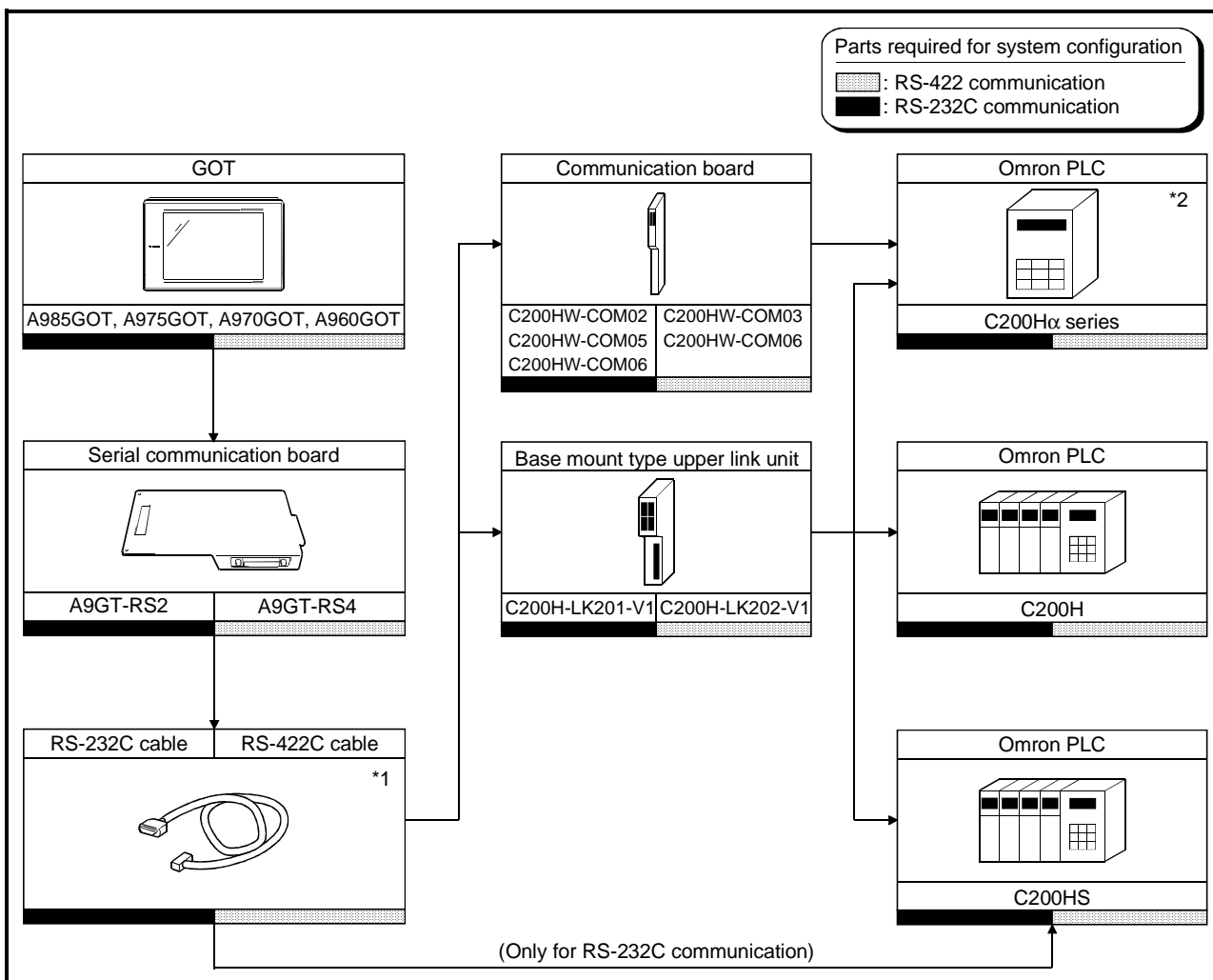
MEMO

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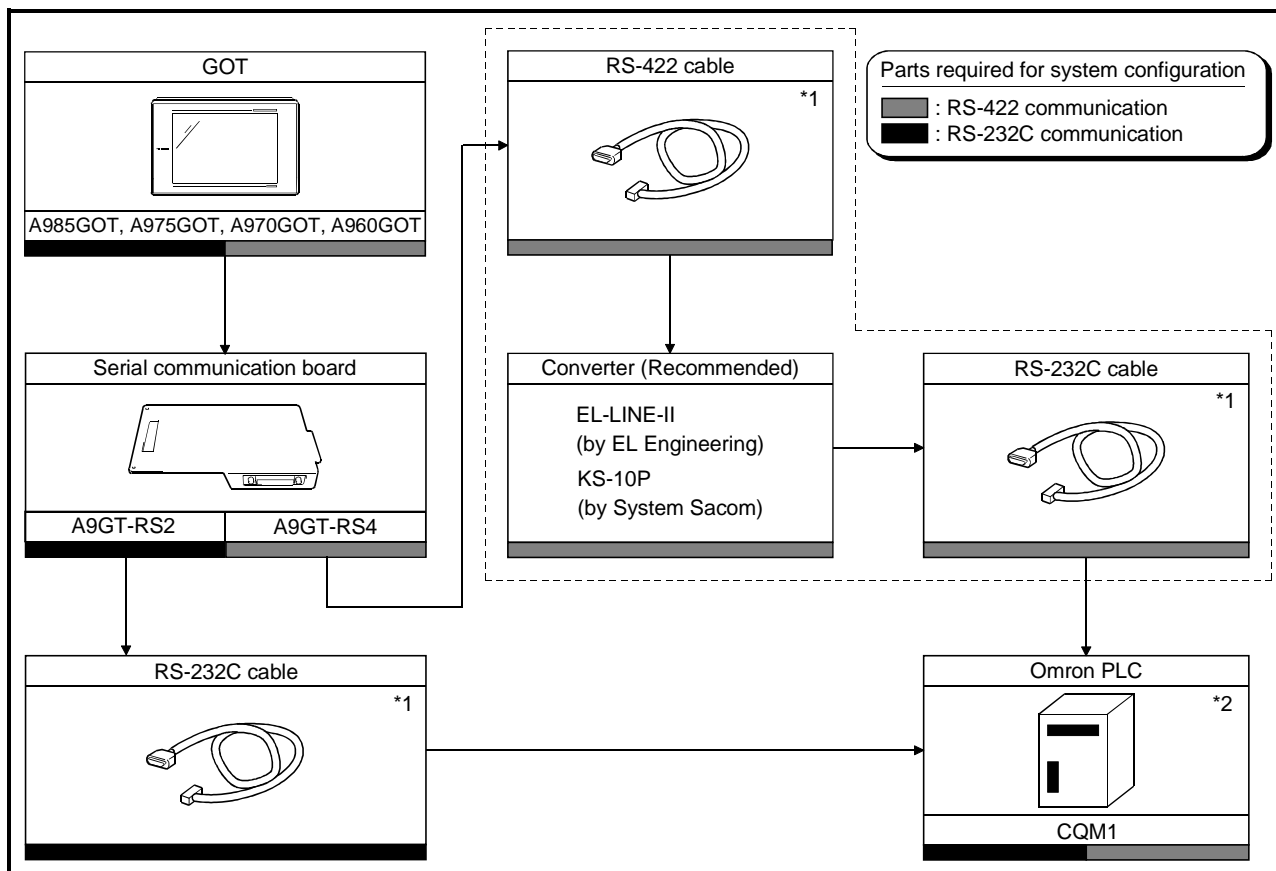
Chapter10 Omron PLC connection

10.1 System configuration

10.1.1 System configuration of connection to C200H, C200HS and C200Hα series



10.1.2 System configuration of connection to CQM1

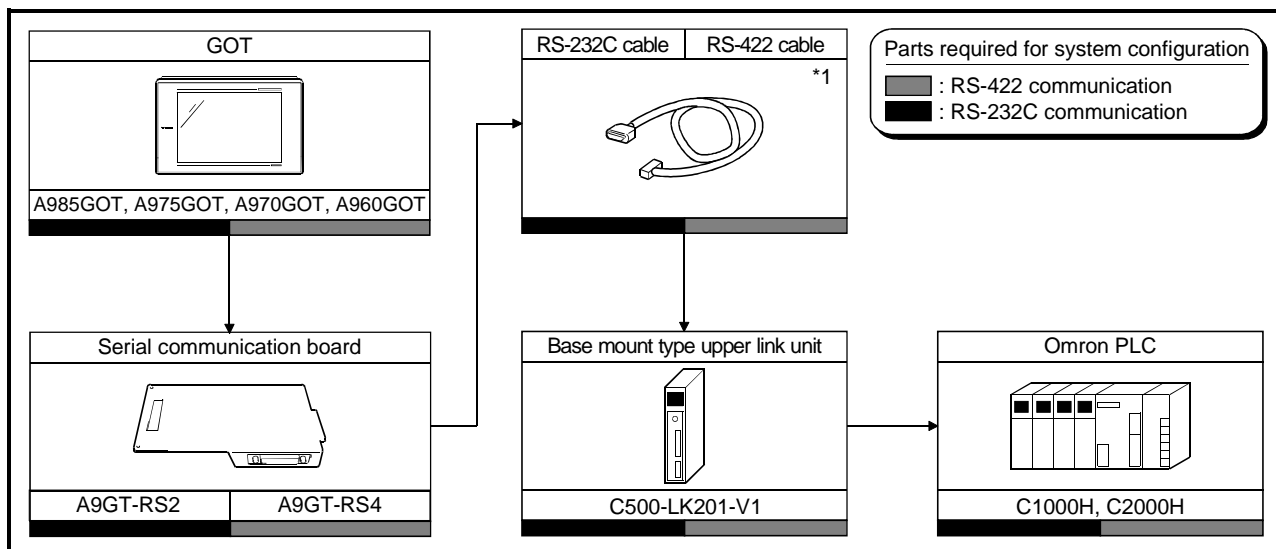


*1 Connection cable must be prepared by the user.

For details of preparation, refer to 10.3.

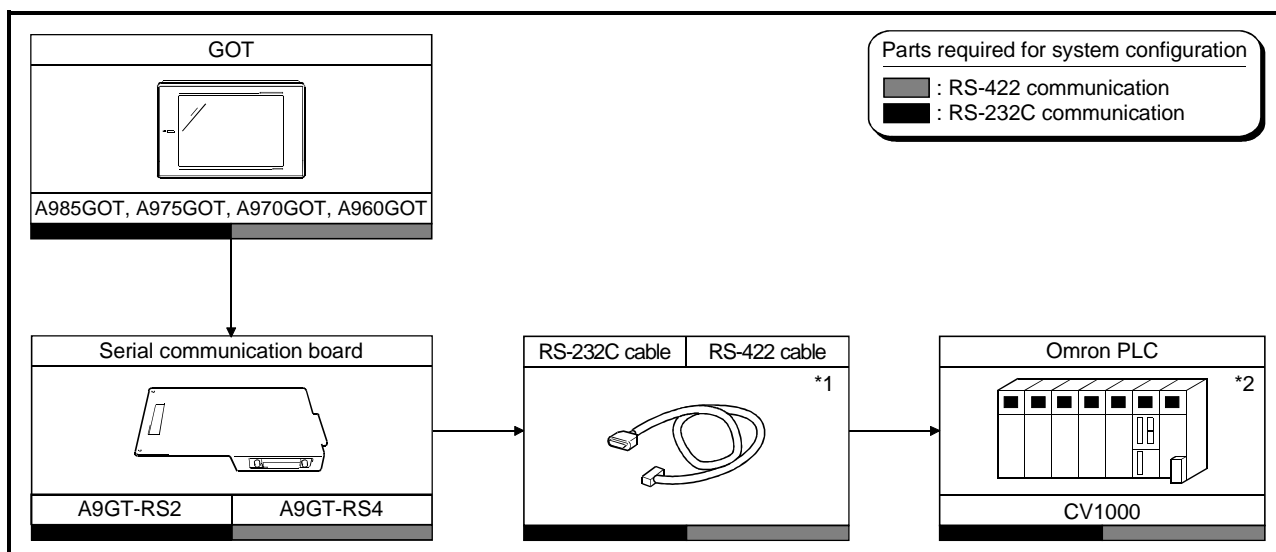
*2 CQM1-CPU11 cannot be connected because it does not have RS-232C interface.

10.1.3 System configuration of connection to C1000H and C2000H



*1 Connection cable must be prepared by the user.
For details of preparation, refer to 10.3.

10.1.4 System configuration of connection to CV1000



*1 Connection cable must be prepared by the user.
For details of preparation, refer to 10.3.

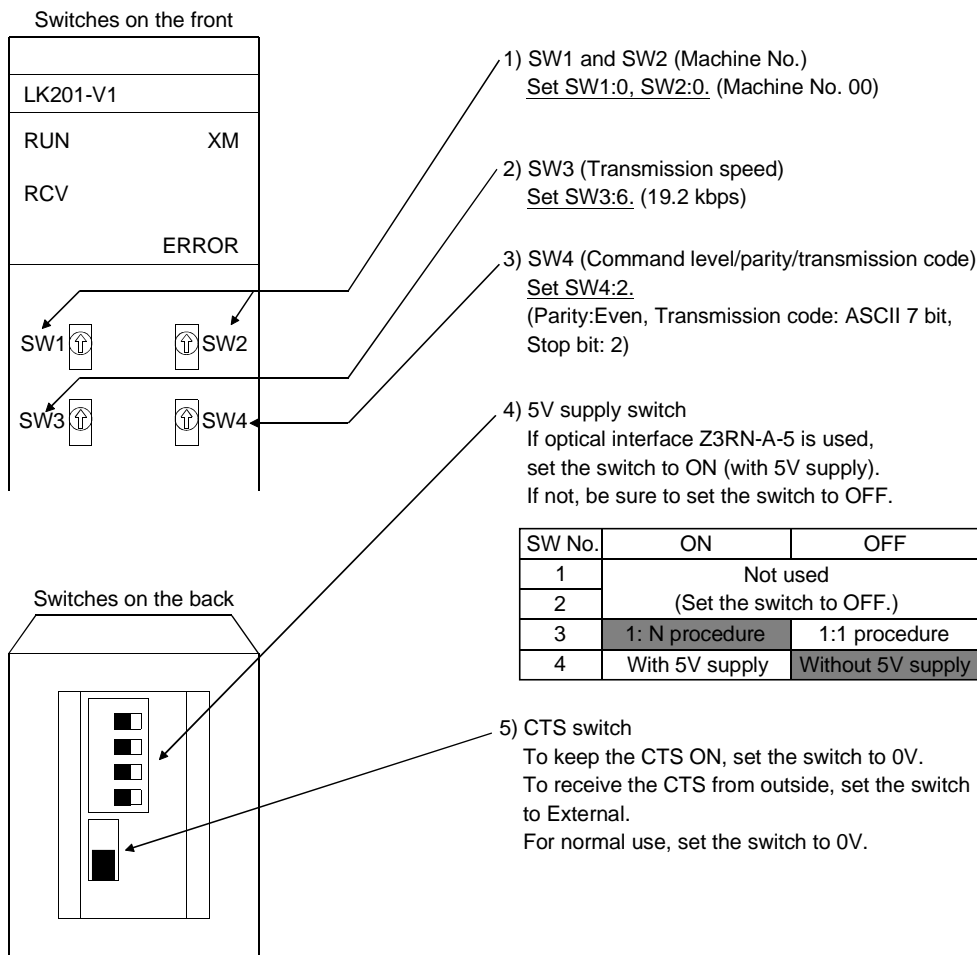
*2 Use CV1000 unit of version 1 or later.

10.2 Initial setting

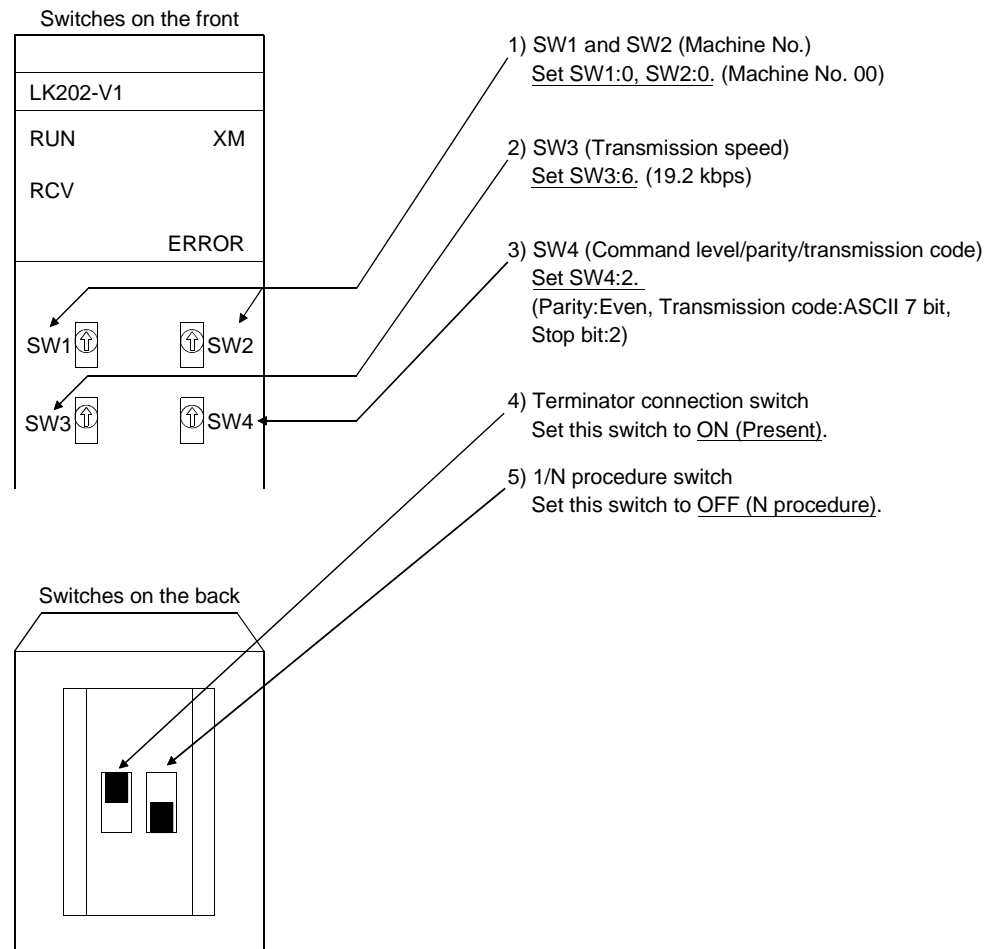
10.2.1 Switch setting of upper link unit

When using the upper link unit (C200H-LK201-V1, C200H-LK202-V1, C500H-LK201-V1), set the switches as follows.

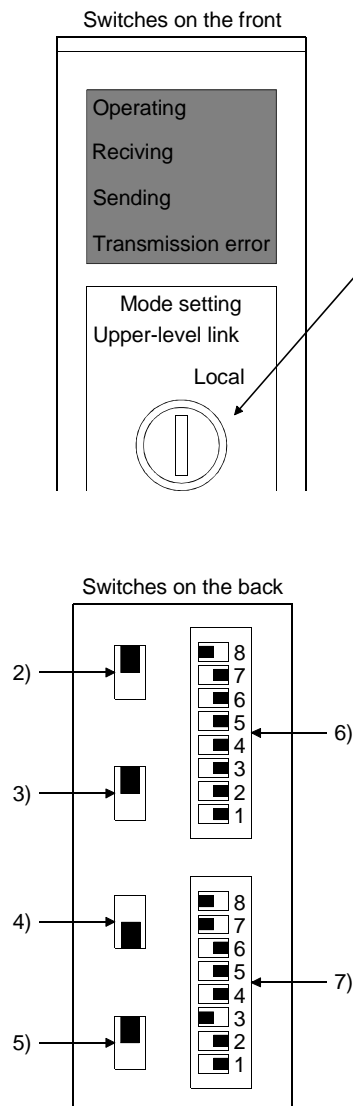
(1) When using C200H-LK201-V1



(2) When using C200H-LK202-V1



(3) When using C500H-LK201-V1



- 1) Upper link/local switch
Set this switch to Upper link.
- 2) Switch for RS-232C/RS-422
For RS-422 communication,
set this switch to RS-422 (up).
For RS-232C communication,
set this switch to RS-232C (down).
- 3) Switch for internal/external clock
Set this switch to Internal (up).
- 4) Terminator connection switch
Set this switch to Present (down).
- 5) CTS switch
Set this switch to 0V (up).

- 6) SW1 (Machine No., ON/OFF of operation)
Set the switches as follows.

1	2	3	4	5	6	7	8
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Machine No.00 Operation

- 7) SW2 (Transmission speed, 1/N procedure, Level)

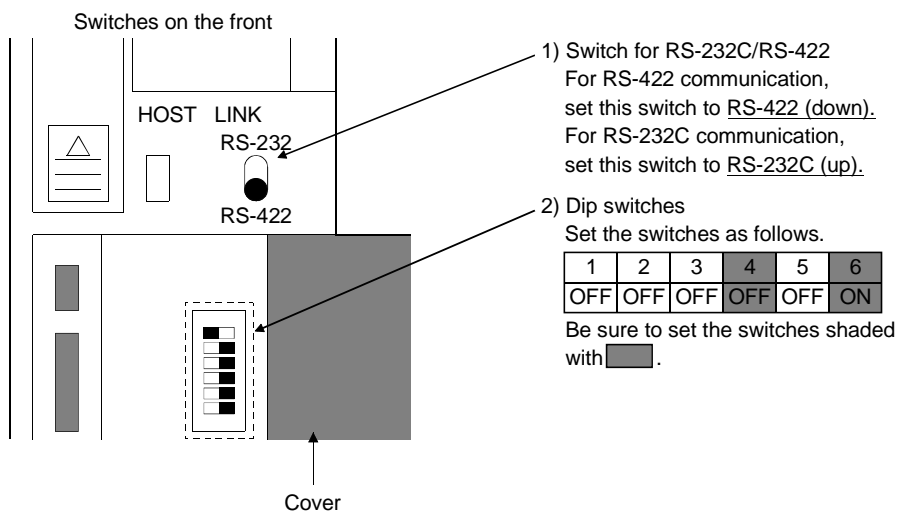
1	2	3	4	5	6	7	8
OFF	OFF	ON	OFF	OFF	OFF	ON	ON

19.2KBPS Levels 1, 2, and 3 are effective.
1: N procedure

10.2.2 Setting CV1000

(1) Switches

For CPU (CV1000), set the switches as follows.



(2) Setting by peripheral tool

Use a peripheral tool to set the CPU (CV1000) as follows.

Item	Set value
Transmission speed	19200bps
Stop bit	2 stop bit
Parity	Even parity
Data length	7 bit
Machine No.	Machine No. 00

10.2.3 Initializing CQM1

Before using the RS232C port of CQM1, write values to the devices as follows and initialize the port by using a peripheral tool or the DM monitor.

For further details, refer to the instruction manual of CQM1.

Device name	Value	Device name	Value
DM6645	0001H	DM6646	0304H
DM6647	0000H	DM6648	0000H
DM6649	0000H		

10.2.4 Communication board initialization program

Before using the communication board, write values to the devices as follows and initialize port A of the communication board.

For application of devices and initialization programs, refer to the instruction manual of the communication board.

Device name	Value	Device name	Value
DM6550 to DM6554	Not required	DM6555	0001H
DM6556	0304H	DM6557	0000H
DM6558	0000H	DM6559	0000H

10.3 Connection cable

10.3.1 RS-422 cable

The connection diagram and connectors for the RS-422 cables between the upper link unit, the communication board, the CPU (CV1000) and the GOT are as follows.

(1) Connection diagram

1) Upper link unit

2) Communication board

Omron (D-sub 9-pin male metric screw type)				Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)		Summary
Signal name		Pin No.			Pin No.	Signal name	
1)	2)	1)	2)				
SDA		5	2		2	RDA	Received data
SDB		9	1		15	RDB	Received data
RDA		1	8		3	SDA	Transmission data
RDB		6	6		16	SDB	Transmission data
					5	RSA	Transmission request
					18	RSB	Transmission request
					4	CSA	Ready
					17	CSB	Ready
					20		
SG	SHELL	3			8	SG	Signal ground
				21	SG(shield)		

3) CPU(CV1000)

Omron (D-sub 9-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)		Summary
Signal name	Pin No.		Pin No.	Signal name	
SDA	2		2	RDA	Received data
SDB	1		15	RDB	Received data
RDA	8		3	SDA	Transmission data
RDB	6		16	SDB	Transmission data
			5	RSA	Transmission request
RS	4		18	RSB	Transmission request
CS	6		4	CSA	Ready
			17	CSB	Ready
			20		
SHELL			8	SG	Signal ground
		21	SG(shield)		

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for Omron

Use connectors attached to the upper link unit, the communication board and the CPU (CV1000).

(3) Precautions for cable preparation

The cable must be 200m(655.74feet) or shorter.

10.3.2 RS-232C cable

The connection diagram and connectors for the RS-232C cables between the upper link unit, the communication board, the CPU (CV1000, CQM1) and the GOT are as follows.

(1) Connection diagram

1) Upper link unit

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
—	6		6	DSR(DR)
SG	7		7	RS(RTS)
—	8		8	CS(CTS)
ER	20		9	—

2) Communication board

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
5V	6		6	DSR(DR)
DR(DSR)	7		7	RS(RTS)
ER(DTR)	8		8	CS(CTS)
SG	9		9	—

3) CPU (CV1000, CQM1)

Omron (D-sub 25-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RSD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
—	6		6	DSR(DR)
CD	7		7	RS(RTS)
—	8		8	CS(CTS)
SG	9		9	—
FG	SHELL		—	—

(2) Connector and connector cover

- Connector for GOT

Use connector matching the following connector that is used for the GOT.

9-pin D-sub (male) inch screw type

Manufactured by DDK

17LE-23090-27 (D3CC)

- Use connectors attached to the upper link unit, the communication board and the CPU (CV1000, CQM1).

(3) Precautions for cable preparation

The cable must be 15m(49.18feet) or shorter.

10.3.3 Converter and connection cable used in CQM1

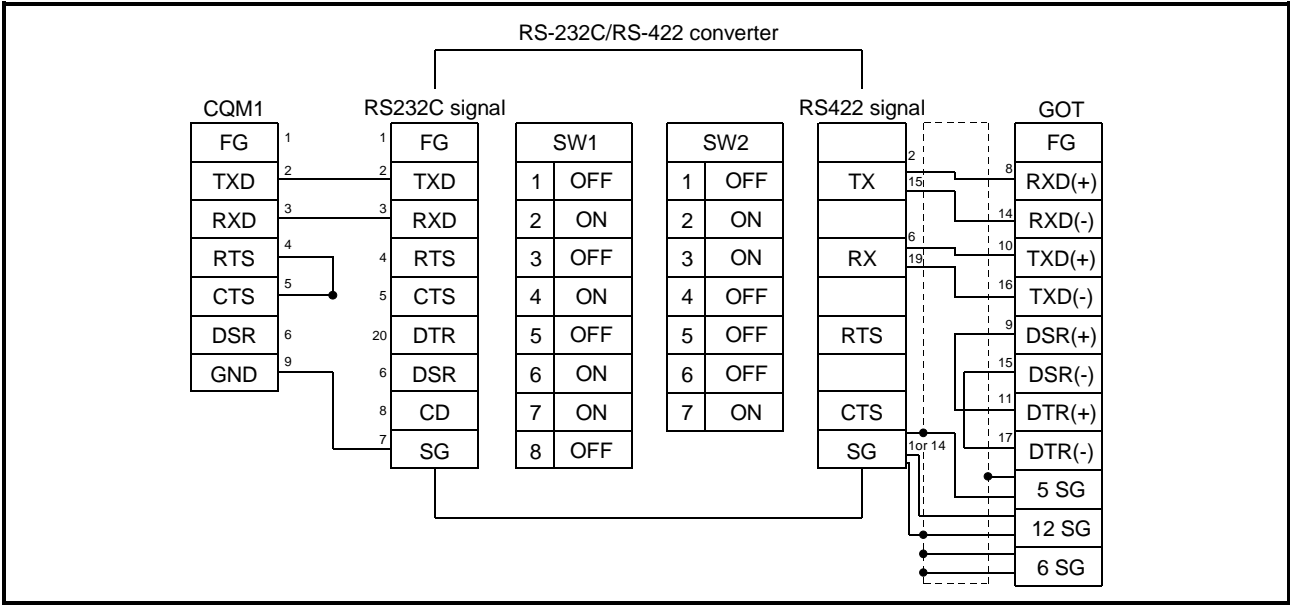
The converters (recommended parts) for connecting the CQM1 and the GOT, and the connection diagram and connectors are as follows.

(1) Available converter

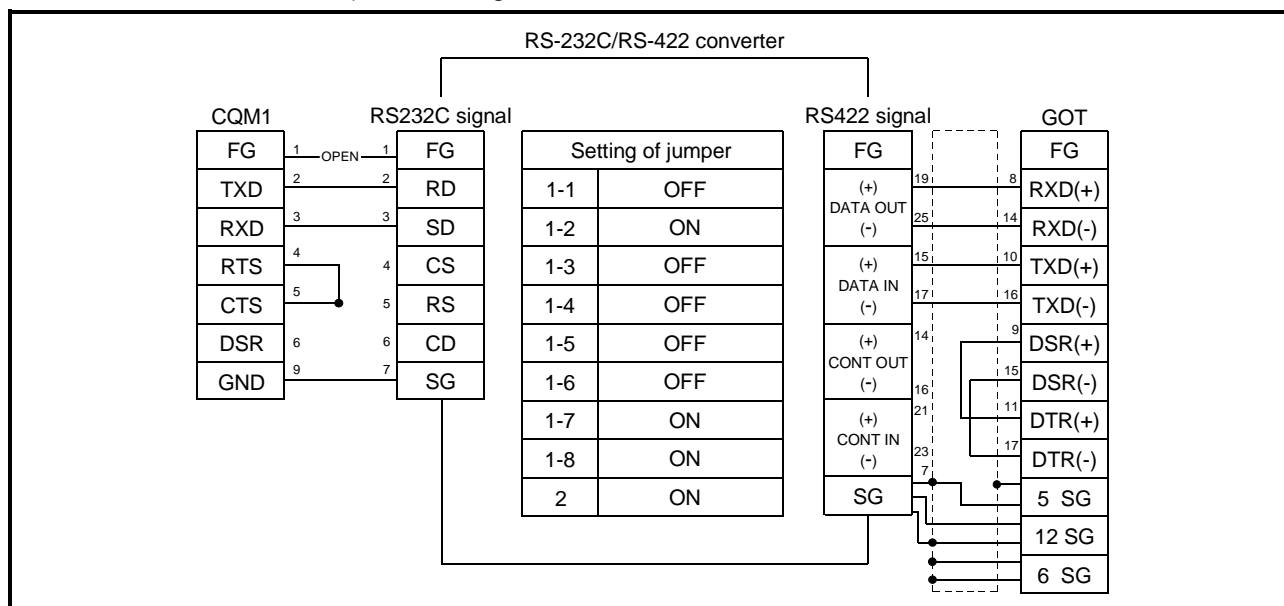
Model name	Manufacturer
EL-LINE-II	EL Engineering
KS-10P	System Sacom

(2) Connection diagram

1) When using EL-LINE-II



2) When using KS-10P



(3) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for CQM1

Use connector attached to the CQM1.

• When using EL-LINE-II

RS-232C : D-Sub 25-pin male screw type

RS-422 : D-Sub 25-pin female screw type

• When using KS-10P

RS-232C : D-Sub 9-pin male screw type

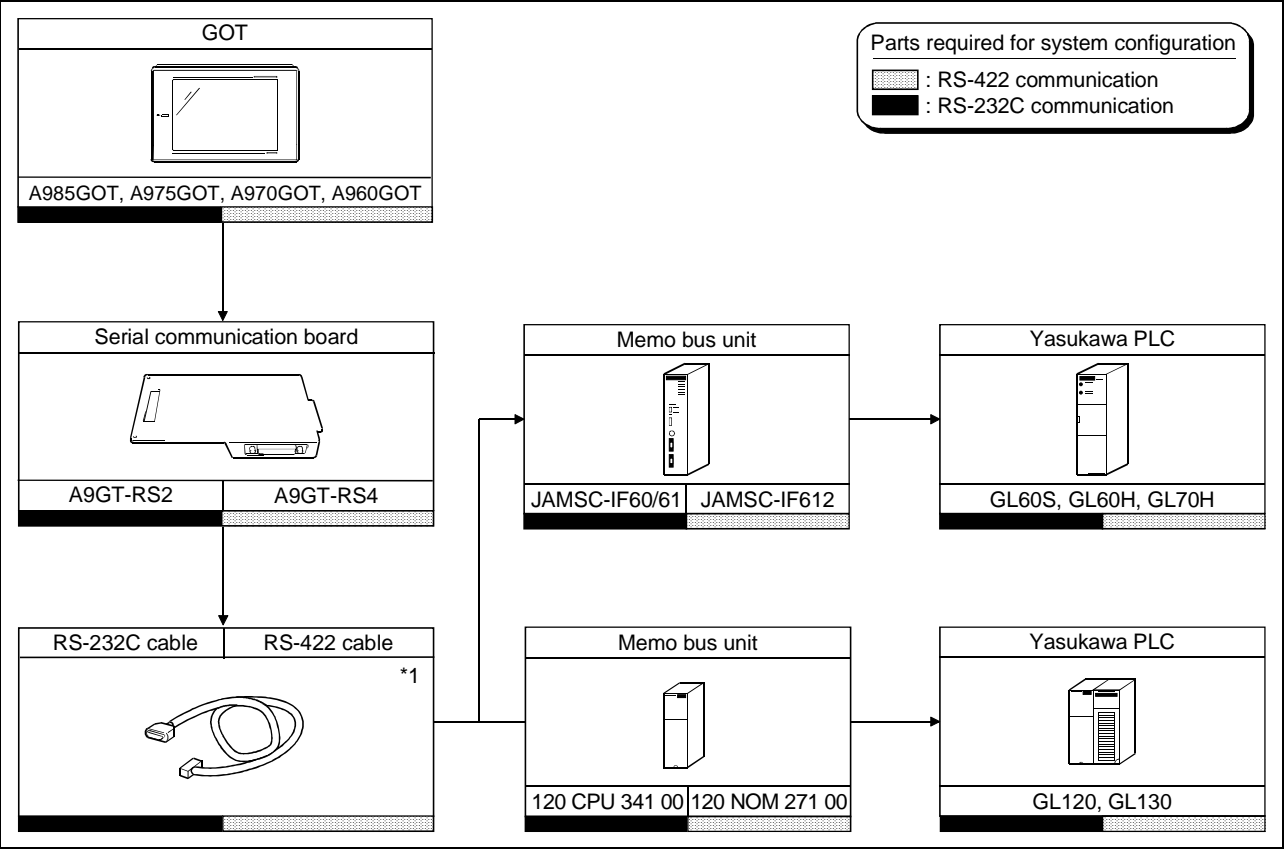
RS-422 : D-Sub 25-pin female screw type

(4) Precautions for cable preparation

- The cable length (including the converter) must be 200m(655.74feet) or shorter.

Chapter11 Yasukawa PLC connection

11.1 System configuration



*1 Connection cable must be prepared by the user.
For details of preparation, refer to 11.3.

11.2 Communication setting of memo bus unit

Set the communication and the port of the memo bus unit as follows by using the peripheral tool.

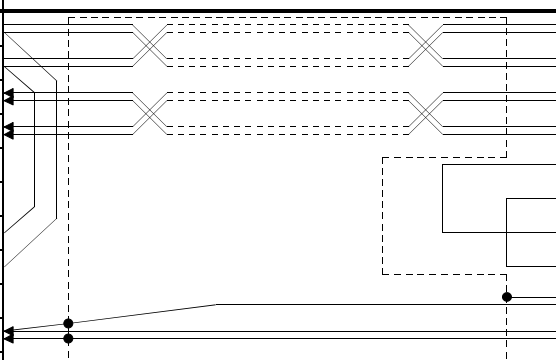
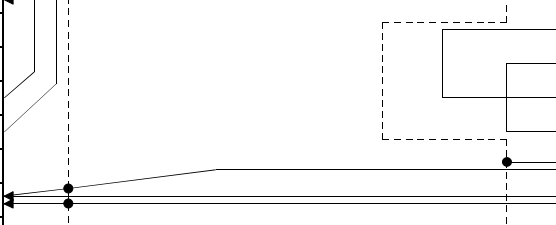
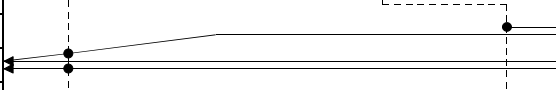
For further details, refer to the instruction manual of the memo bus unit.

Item	Set value
Address	1
Protocol	MEMOBUS
Mode	RTU
Data length	8
Parity	EVEN
Stop	1
Communication speed	19200bps

11.3 Connection cable

11.3.1 RS-422 cable

(1) Connection diagram

Yasukawa PLC (D-sub 9-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male inch screw type)		Summary
Signal name	Pin No.		Pin No.	Signal name	
SDA	2		2	RDA	Received data
SDB	9		15	RDB	Received data
RDA	3		3	SDA	Transmission data
RDB	6		16	SDB	Transmission data
PGND	1		5	RSA	Transmission request
Reception end	4		18	RSB	Transmission request
Reception end	8		4	CSA	Ready
			17	CSB	Ready
SG	7		20		
			8	SG	Signal ground
			21	SG(shield)	

(2) Connector and connector cover

• Connector for GOT

Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for Yasukawa PLC

Use a connector matching the memo bus unit.

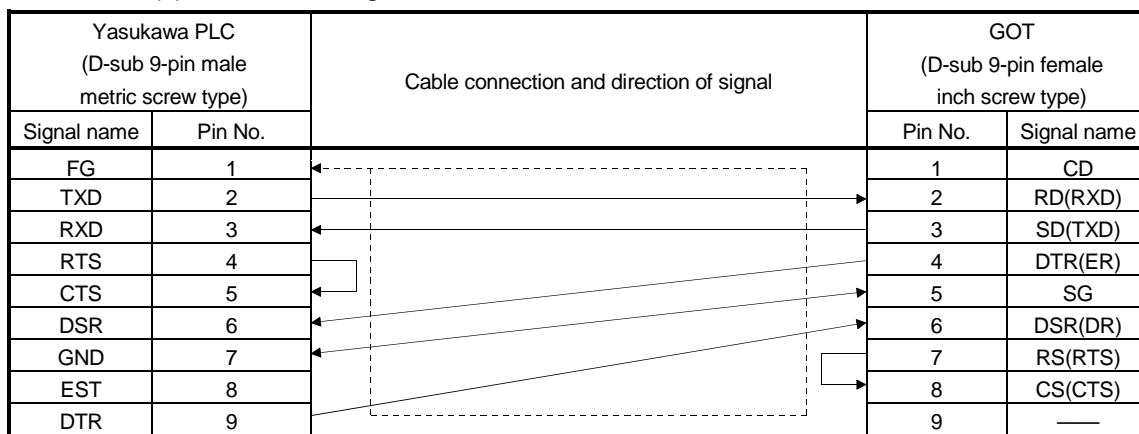
(3) Precautions for cable preparation

Maximum cable length depends on the specifications of the memo bus unit.

For further details, refer to the instruction manual of the memo bus unit.

11.3.2 RS-232C cable

(1) Connection diagram



(2) Connector and connector cover

• Connector for GOT

Use connector matching the following connector that is used for the GOT.

9-pin D-sub (male) inch screw type

Manufactured by DDK

17LE-23090-27 (D3CC)

• Connector for Yasukawa PLC

Use connectors matching the memo bus unit, GL120 and GL130.

(3) Precautions for cable preparation

The maximum cable length depends on the specifications of the memo bus unit and the CPU (GL120, GL130).

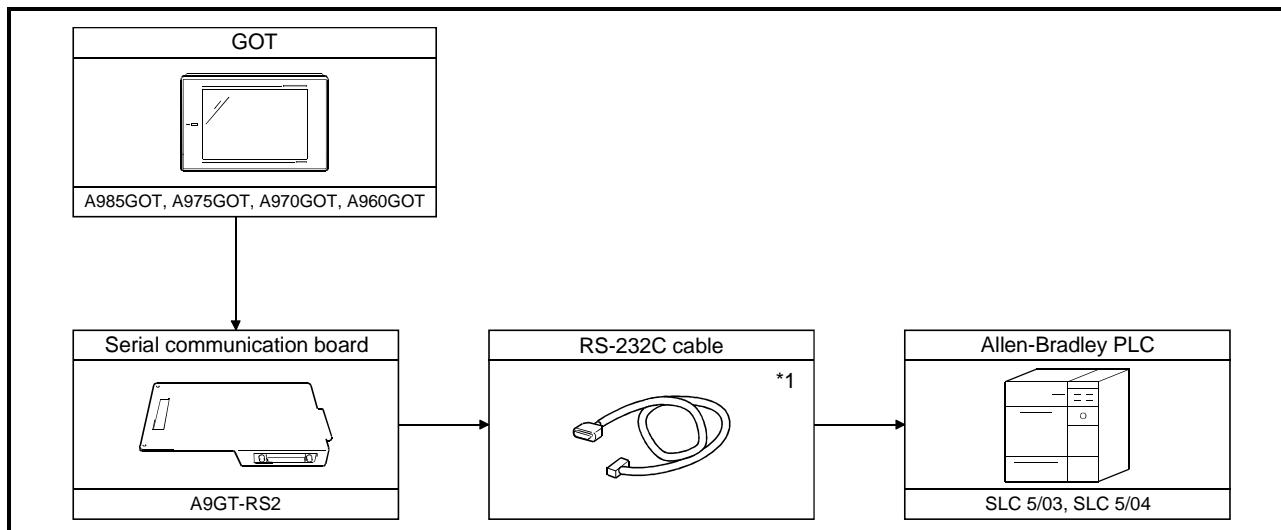
For further details, refer to the instruction manuals of the memo bus unit and the CPU (GL120, GL130).

MEMO

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Chapter12 Allen-Bradley PLC connection

12.1 System configuration



*1 The connection cable must be prepared by the user.
For details of preparation, refer to 12.4.

12.2 Communication settings of Allen-Bradley PLC

For monitoring with connection to the GOT, make the communication settings and the port settings with the peripheral tool as follows.

For details, refer to the operation manual of the Allen-Bradley PLC.

Setting of Allen-Bradley PLC	
Band Rate	19200bps
—	—
Parity	EVEN
—	—
Communication Driver	DF1 HALF-DUPLEX SLAVE
Duplicate Packet Detection	DISABLE
Error Detection	BCC
Control Line	NO HANDSHAKING
Station Address	0

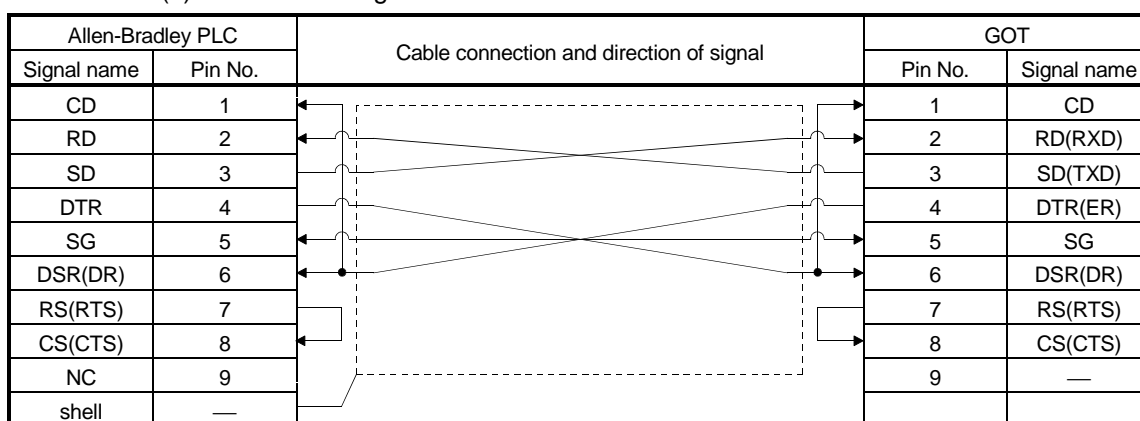
12.3 Transmission specification

Transmission specification for communication between the GOT and the Allen-Bradley PLC is as follows:

Item	Setting details
Transmission speed	19200bps
Data length	8 bit
Stop bit	1 bit
Parity bit	EVEN
Control method	None

12.4 Connection cable

(1) Connection diagram



(2) Connector and connector cover to be used

- GOT connector

The following connector is used for RS-232C interface of A9GT-RS2.

Use the connector at the other end matching this connector.

9-pin D sub (male) inch screw type

Made by DDK

17LE-23090-27 (D3CC)

- Connector for Allen-Bradley PLC

Use the connector that matches the Allen-Bradley PLC.

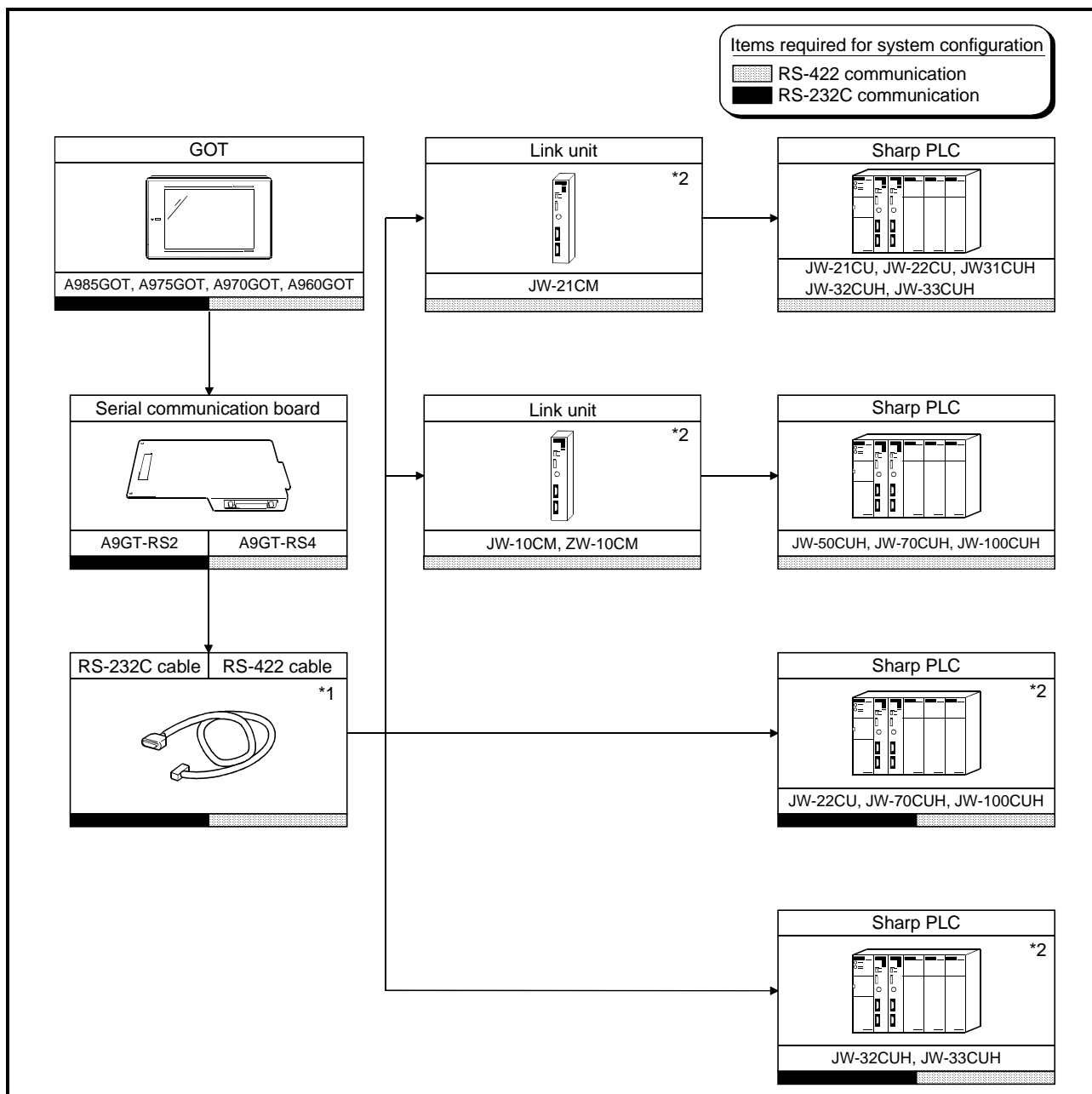
(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Allen-Bradley PLC specification.

For details, refer to the Allen-Bradley PLC operation manual.

Chapter13 Sharp PLC connection

13.1 System configuration



*1 The connection cable must be prepared by the user.

For details of preparation, refer to 13.4.

*2 For communication to the GOT, it is necessary to make settings for communication.

For details of settings, refer to 13.2.

13.2 Initial setting

13.2.1 Connecting directly to the PLC CPU

To connect the GOT to the PLC CPU directly, it is necessary to make initial settings of the communication port.
Set the system memory of the PLC CPU with the peripheral tool as follows.
For details of the setting method, refer to the operation manual of the Sharp PLC.

(1) When using JW-22CUH, JW-70CUH and JW-100CUH

Setting item	System memory address	Setting details
Setting of communication port	#236	<div>Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows :</div> <div><div><div>D7D6D5D4D3D2D1D0</div><div>#236- - 1 1 0 0 0 1</div></div><div><div>Transmission specification (9600bps)</div><div>Parity (even number)</div><div>Stop bit (2 bit)</div></div></div>
	#237	<div>Set the station number as follows :</div> <div><div>#2371</div><div>Station No. (1)</div></div>

(2) When using JW-32CUH and JW-33CUH

Setting item	System memory address	Setting details																		
Setting of communication port 1	#234	<p>Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows :</p> <table><tr><td></td><td>D7</td><td>D6</td><td>D5</td><td>D4</td><td>D3</td><td>D2</td><td>D1</td><td>D0</td></tr><tr><td>#234</td><td>-</td><td>-</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> <p>Transmission specification (19200bps)</p> <p>Parity (even number)</p> <p>Stop bit (2 bit)</p>		D7	D6	D5	D4	D3	D2	D1	D0	#234	-	-	1	1	0	0	0	0
		D7	D6	D5	D4	D3	D2	D1	D0											
#234	-	-	1	1	0	0	0	0												
	#235	<p>Set the station number as follows :</p> <table><tr><td>#235</td><td>1</td></tr></table> <p>Station No. (1)</p>	#235	1																
#235	1																			
Setting of communication port 2	#236	<p>Set the transmission speed, the parity and the stop bit to the bit of D0 to D5 as follows :</p> <table><tr><td></td><td>D7</td><td>D6</td><td>D5</td><td>D4</td><td>D3</td><td>D2</td><td>D1</td><td>D0</td></tr><tr><td>#236</td><td>-</td><td>-</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> <p>Transmission specification (19200bps)</p> <p>Parity (even number)</p> <p>Stop bit (2 bit)</p>		D7	D6	D5	D4	D3	D2	D1	D0	#236	-	-	1	1	0	0	0	0
		D7	D6	D5	D4	D3	D2	D1	D0											
#236	-	-	1	1	0	0	0	0												
	#237	<p>Set the station number as follows :</p> <table><tr><td>#237</td><td>1</td></tr></table> <p>Station No. (1)</p>	#237	1																
#237	1																			

13.2.2 Connecting to the link unit

To connect the GOT to the link unit, it is necessary to make settings for initial communication.

Set the switches on the link unit as follows.

For details of the setting method, refer to the operation manual of the link unit.

Switch No.		Setting item	Set value
SW3	2	2 wire /4 wire	ON (4 wire)
	4	Parity	ON (even number)
SW4		Setting of transmission speed	0 (19200 bit/s)

13.3 Transmission specification

Transmission specification for communication between the GOT and the Sharp PLC is as follows :

(1) JW-22CU, JW-70CUH, JW-100CUH (when directly connected to the PLC CPU)

Item	Set value
Transmission speed	9600bps
Data length	7 bit
Stop bit	2 bit
Parity bit	EVEN
Control method	None

(2) JW-32CUH, JW-33CUH (when directly connected to the PLC CPU)

Item	Set value
Transmission speed	19200bps
Data length	7 bit
Stop bit	2 bit
Parity bit	EVEN
Control method	None

(3) JW-21CU, JW-22CU, JW-31CUH, JW-32CUH, JW-33CUH, JW-50CUH, JW-70CUH, JW-100CUH,
(when connected through the link unit)

Item	Set value
Transmission speed	19200bps
Data length	7 bit
Stop bit	2 bit
Parity bit	EVEN
Control method	None

13. SHARP PLC CONNECTION

MELSEC GOT

13.4 Connection cable

13.4.1 RS-422 cable

The RS-422 cable connection diagram and the connector for the PLC CPU and the link unit are as follows :

(1) Connection diagram

(a) PLC CPU (JW-22CU, JW-70CUH, JW-100CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)		Summary
Signal name	Pin No.		Pin No.	Signal name	
SD(+)	10		2	RDA	Received data
SD(-)	11		15	RDB	Received data
RD(+)	12		3	SDA	Transmission data
RD(-)	13		16	SDB	Transmission data
			5	RSA	Transmission request
			18	RSB	Transmission request
			4	CSA	Ready
			17	CSB	Ready
			7		
FG	1		8	SG	Signal ground
			20		
SG	7		21	SG (shield)	

(b) PLC CPU (JW-32CUH, JW-33CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)		Summary
Signal name	Pin No.		Pin No.	Signal name	
SD(+)	3		2	RDA	Received data
SD(-)	11		15	RDB	Received data
RD(+)	9		3	SDA	Transmission data
RD(-)	10		16	SDB	Transmission data
			5	RSA	Transmission request
			18	RSB	Transmission request
			4	CSA	Ready
			17	CSB	Ready
			7		
FG	1		8	SG	Signal ground
			20		
SG	6		21	SG (shield)	
SG	7				

(c) Link unit (JW-21CM, JW-10CM, ZW-10CM)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 25-pin male metric screw type)		Summary
Signal name	Pin No.		Pin No.	Signal name	
SD(+)	L1		2	RDA	Received data
SD(-)	L2		15	RDB	Received data
RD(+)	L3		3	SDA	Transmission data
RD(-)	L4		16	SDB	Transmission data
			5	RSA	Transmission request
			18	RSB	Transmission request
			4	CSA	Ready
			17	CSB	Ready
SHIELD	SHIELD		7		
FG	FG		8	SG	Signal ground
			20		
			21	SG (shield)	

(2) Connector and connector cover to be used

- GOT connector

Name	Type	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

- Connector at Sharp PLC

Use the connector matching the Sharp PLC.

(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Sharp PLC specification.

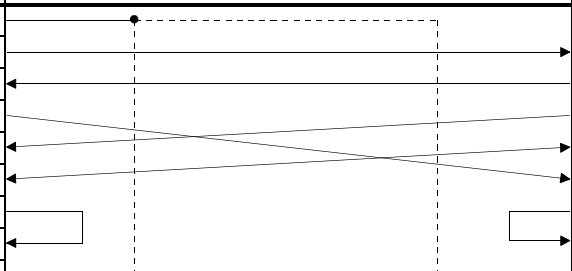
For details, refer to the Sharp PLC operation manual.

13.4.2 RS-232C cable

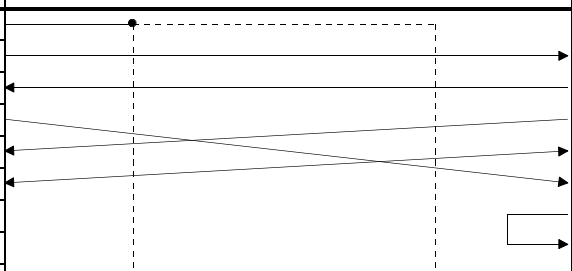
The RS-232C cable connection diagram and the connector for the PLC CPU and the GOT are as follows :

(1) Connection diagram

(a) PLC CPU (JW-22CU, JW-70CUH, JW-100CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	3		3	SD(TXD)
RS(RTS)	4		4	DTR(ER)
CS(CTS)	5		5	SG
SG	7		6	DSR(DR)
	12		7	RS(RTS)
	14		8	CS(CTS)
			9	—

(b) PLC CPU (JW-32CUH, JW-33CUH)

Sharp (D-sub 15-pin male metric screw type)		Cable connection and direction of signal	GOT (D-sub 9-pin female inch screw type)	
Signal name	Pin No.		Pin No.	Signal name
FG	1		1	CD
SD(TXD)	2		2	RD(RXD)
RD(RXD)	4		3	SD(TXD)
RS(RTS)	8		4	DTR(ER)
CS(CTS)	12		5	SG
SG	7		6	DSR(DR)
			7	RS(RTS)
			8	CS(CTS)
			9	—

(2) Connector and connector cover to be used

- GOT connector

The following GOT connector is used. Use the connector at the other end matching this connector.

9-pin D sub (male) inch screw type

Made by DDK

17LE-23090-27 (D3CC)

- Connector for Sharp PLC

Use the connector that matches the Sharp PLC.

(3) Precautions for preparation of connector

The maximum cable length may vary depending on the specification of the Sharp PLC specification.

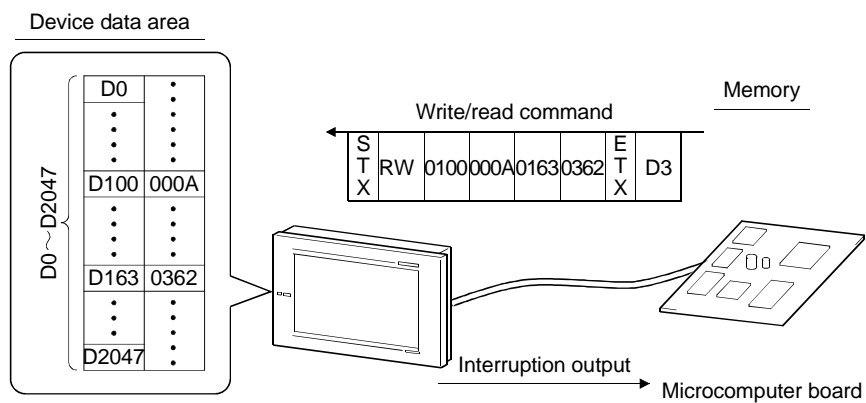
For details, refer to the Sharp PLC operation manual.

MEMO

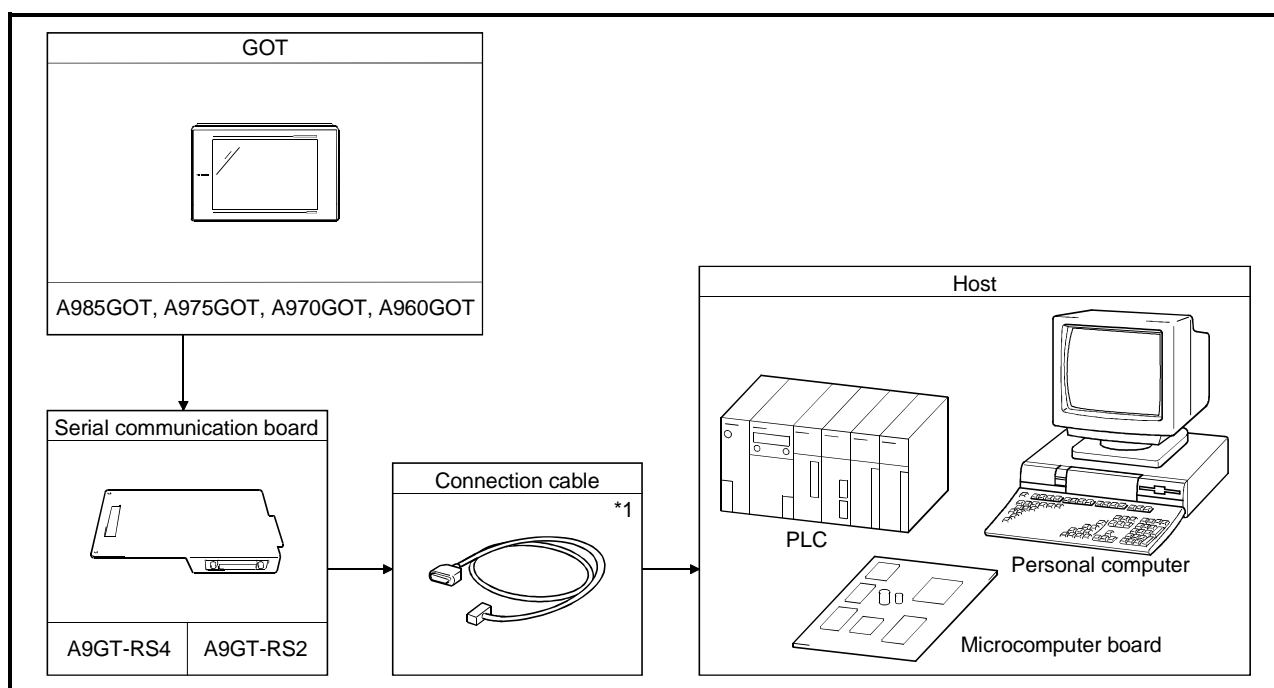
[illegible]

Chapter14 Microcomputer connection

A virtual device of the GOT (D) can be monitored from the personal computer, microcomputer board and PLC (hereinafter referred to as "host") by sending/receiving data.



14.1 System configuration



*1 Connection cable must be prepared by the user.
For details of preparation, refer to 14.2.

14.2 Connecting cable

14.2.1 With connection to DTR

The cable connection diagram and the connector with connection to DTR signals are described below.

(1) When using RS-422 communication

(a) Connection diagram

Host	Cable connection and direction of signal	GOT		Summary
Signal name		Pin No.	Signal name	
SDA		2	RDA	Received data
SDB		15	RDB	Received data
RDA		3	SDA	Transmission data
RDB		16	SDB	Transmission data
DSR+		5	RSA	Transmission request (DTR+)
DSR-		18	RSB	Transmission request (DTR-)
DTR+		4	CSA	Ready (DSR+)
DTR-		17	CSB	Ready (DSR-)
		20		
SG		8	SG	Signal ground
		21	SG(shield)	

DSR signal ... If this signal is OFF, data is not transmitted from the GOT to the host.

Normally, send signals from the host so that the DSR is always ON.

DTR signal ... This signal is turned ON when the GOT is ready to receive data.

(b) Connector and connector cover

• Connector for GOT

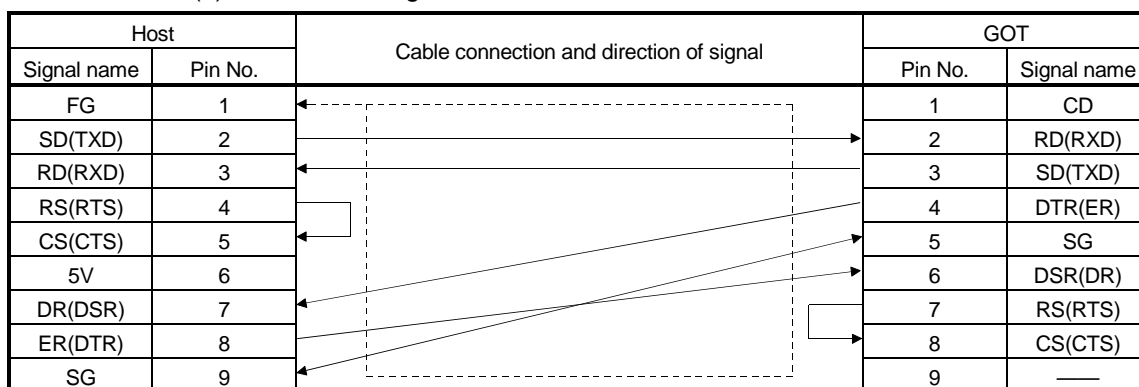
Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for host

Use a connector matching the host.

(2) When using RS-232C communication

(a) Connection diagram



Note) The pin numbers for the host in the above diagram are for reference.
Use pin numbers according to the specification of the host.

(b) Connector and connector cover

• Connector for GOT

The following connector is used for the RS-232C interface of A9GT-RS2.

Use connector matching this connector.

9-pin D-sub (male) inch screw type

Manufactured by DDK

17LE-23090-27 (D3CC)

• Connector for host

Use connectors matching the host.

14.2.2 Without connection to DTR

The cable connection diagram and the connector without connection to DTR signals are described below.

(1) When using RS-422 communication

(a) Connection diagram

Host Signal name	Cable connection and direction of signal	GOT		Summary
		Pin No.	Signal name	
SDA		2	RDA	Received data
SDB		15	RDB	Received data
RDA		3	SDA	Transmission data
RDB		16	SDB	Transmission data
		5	RSA	Transmission request (DTR+)
		18	RSB	Transmission request (DTR-)
		4	CSA	Ready (DSR+)
		17	CSB	Ready (DSR-)
		20		
SHELL		8	SG	Signal ground
		21	SG(shield)	

(b) Connector and connector cover

• Connector for GOT

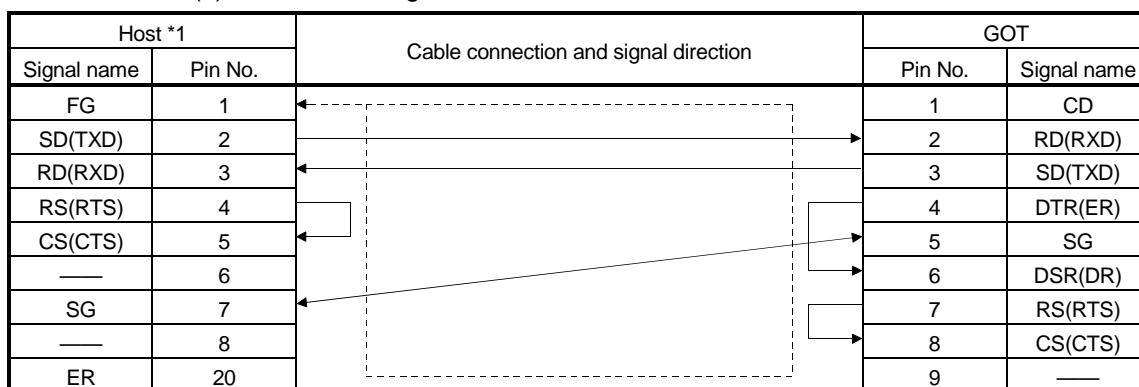
Description	Model	Manufacturer
Connector with cover	17JE-23250-02(D8A6)	DDK

• Connector for host

Use a connector matching the host.

(2) For RS-232C communication

(a) Connection diagram



*1 Pin numbers at the host side are only for reference.

They are not defined.

Use the appropriate number according to the host specification.

(b) Connector and connector cover

• Connector for GOT

RS-232C interface connector of A9GT-RS2 uses the following type.

Use the connector matching this connector.

9 pin D-sub (male) inch screw type

Manufactured by DDK

17LE-23090-27 (D3CC)

• Connector for host

Use a connector matching the host.

14.3 Transmission specification

Transmission specification for communication between the GOT and the host is as follows.

Item	Setting details
Data bit	7 bit
Parity bit	Yes (even number)
Stop bit	1 bit
Sum check	Yes
Transmission speed	4800/9600/19200bps (default 19200bps)

14.4 Device data area

The data area, virtual device of the GOT, is shown below.

Address (decimal)*	Details																
D0 to D2	Not used																
D3	Communication error status Error varies depending on the error status of the GOT communication driver. <table border="1"> <thead> <tr> <th>Bit</th><th>Not used</th></tr> </thead> <tbody> <tr> <td>0 to 3</td><td>Not used</td></tr> <tr> <td>4</td><td>SIO framing error</td></tr> <tr> <td>5</td><td>SIO parity error</td></tr> <tr> <td>6</td><td>SIO overrun error</td></tr> <tr> <td>7</td><td>Communication time error</td></tr> <tr> <td>8</td><td>Cable removal error</td></tr> <tr> <td>9 to 15</td><td>Not used</td></tr> </tbody> </table>	Bit	Not used	0 to 3	Not used	4	SIO framing error	5	SIO parity error	6	SIO overrun error	7	Communication time error	8	Cable removal error	9 to 15	Not used
Bit	Not used																
0 to 3	Not used																
4	SIO framing error																
5	SIO parity error																
6	SIO overrun error																
7	Communication time error																
8	Cable removal error																
9 to 15	Not used																
D4 to D12	Not used																
D13	Interrupt output Write data and lower level 8 bit details are output as interrupt code.																
D14 to D19	Not used																
D20 to D2031	User area																
D2032 to D2034	Not used																
D2035	1 second binary counter Counting increases every second after the power is turned on. The data is binary.																
D2036 to D2047	Not used																

* "D****" indicated in this chapter indicates a virtual device of the GOT and is not the data register of the PLC.

14.5 Communication commands

This section describes commands for communication.

14.5.1 Command list

Commands used for data transmission between the GOT and the host are shown below.

Command	Command name	Details
RD	Batch read command	Designated amount of data is continuously read from the designated device.
WD	Batch write command	Designated amount of data is continuously written into the designated device.
RR	Random read	Data is read from multiple different device addresses.
RW	Random write	Data is written into multiple different device addresses.

14.5.2 Data communication type

2 types of data communication are available in using commands.

Each data communication type is explained below.

Data communication type is switched with the utility function of the GOT.

Refer to GOT-A900 series Operating Manual (Extended • Option Functions Manual) for details of the utility function.

Protocol for selection		Type 1	Type 2
Data communication type (host→GOT)		<div> <div>STX (02H)</div> <div>Command</div> <div>Data (64 points max.)</div> <div>ETX (03H)</div> <div>Sum check</div> </div> <div>Sum check range</div>	
Response data type in normal operation (GOT→host)	Read command in (RD, RR) transmission	<div> <div>STX (02H)</div> <div>Data (64 points max.)</div> <div>ETX (03H)</div> <div>Sum check</div> </div> <div>Sum check range</div>	
	Write command in (WD, RW) transmission	<div>ACK (06H)</div>	
Response data type in error (GOT→host)		<div>NAK (15H)</div>	<div> <div>NAK (15H)</div> <div>*1 Error code</div> </div>
Interrupt output type (GOT→host)		<div>Interrupt output data</div>	<div> <div>STX (02H)</div> <div>Interrupt output data</div> <div>ETX (03H)</div> <div>Sum check</div> </div> <div>Sum check range</div>

*1 When type 2 is used, the error code is stored for interrupt output.

Each error code is shown below in detail.

Error code	Error details	Action
06H	Sum check error An error has occurred at the sum check after receipt of communication packet.	Check the communication line and the transmission packet.
10H	Command error Request command which is not supported was used.	Check the request command data which was transmitted.
11H	Data length error The data volume exceeded the upper limit of the reception buffer.	Check if the total number of bytes in the transmission data packet is within 518 bytes.


Error code	Error details	Action
7BH	Point excess error The allowance of read/write device was exceeded.	Check the range of the designated device
7AH	Address error Top address of read/write device is not within the range.	Check the top address of the designated device.
12H	Communication data error When the communication data is received, this error occurs if EXT is not found before the upper limit of the reception buffer is exceeded.	Check the communication data.

14.5.3 Precautions for use

The sum check code is the last 1 byte (8bit) value of the result (sum) from addition of binary data in the range of the sum check.

(Example) Reading RD command with D100 to D101

STX	R	D	Address				Point	ETX	Sum check	
			0	1	0	0	0	2		B C
02H	52H	44H	30H	31H	30H	30H	30H	32H	03H	42H 43H

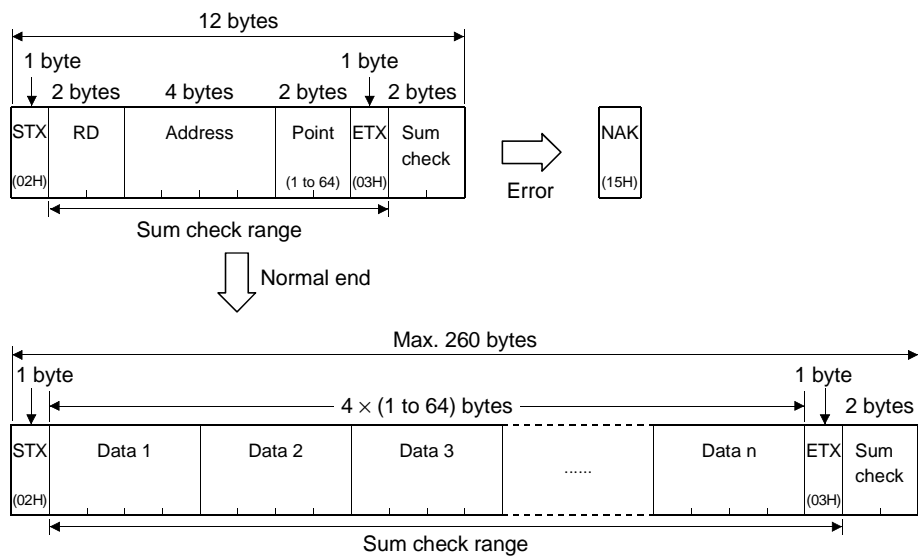


Sum check range

Formula: $52H + 44H + 30H + 31H + 30H + 30H + 30H + 32H + 03H = 1\underline{B}C\underline{H}$

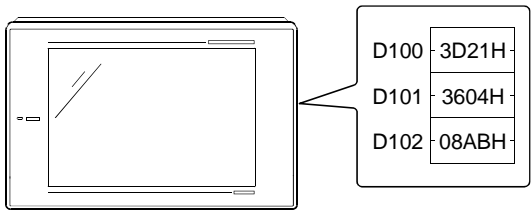
14.5.4 Batch read command (RD)

Batch read command details are shown below.



Example of use

When D100 to D102 are read from the GOT virtual device



STX	R	D	Address				Point	ETX	Sum check
(02H)			0	1	0	0	0	3	B D
	H	MH	ML	L	H	L	(03H)	H	L

Transmission from host to GOT

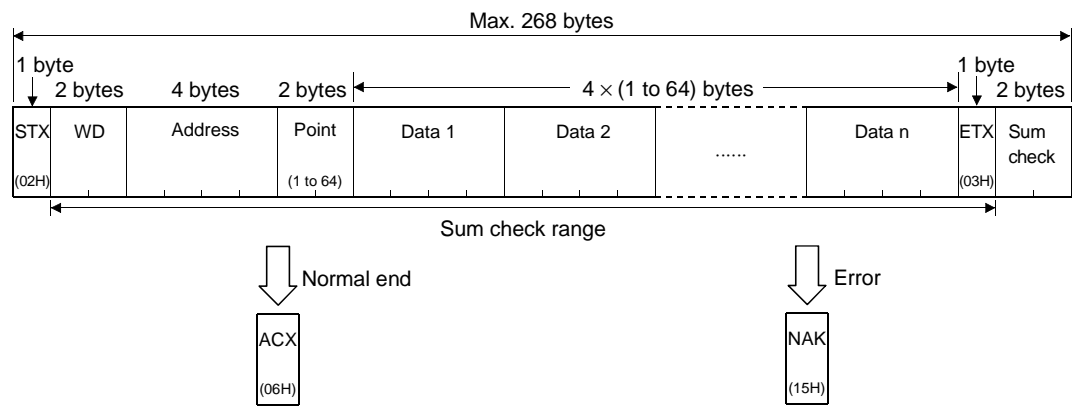


STX	D100				D101				D102				ETX	Sum check
(02H)	3	D	2	1	3	6	0	4	0	8	A	B	(03H)	9 5
	H	MH	ML	L	H	MH	ML	L	H	MH	ML	L	(03H)	H L

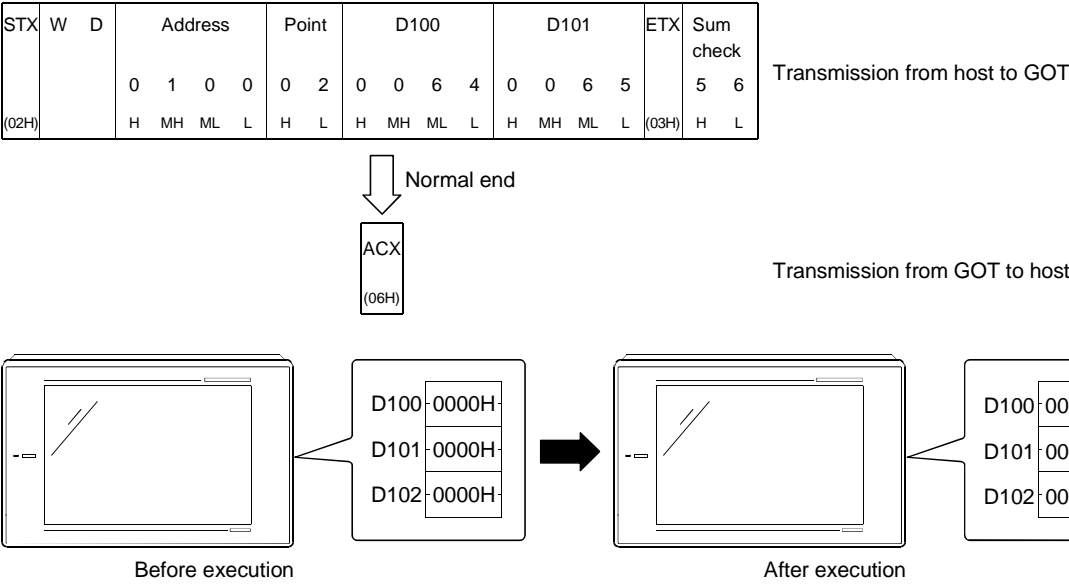
Transmission from GOT to host

14.5.5 Batch write command (WD)

Batch write command details are shown below.

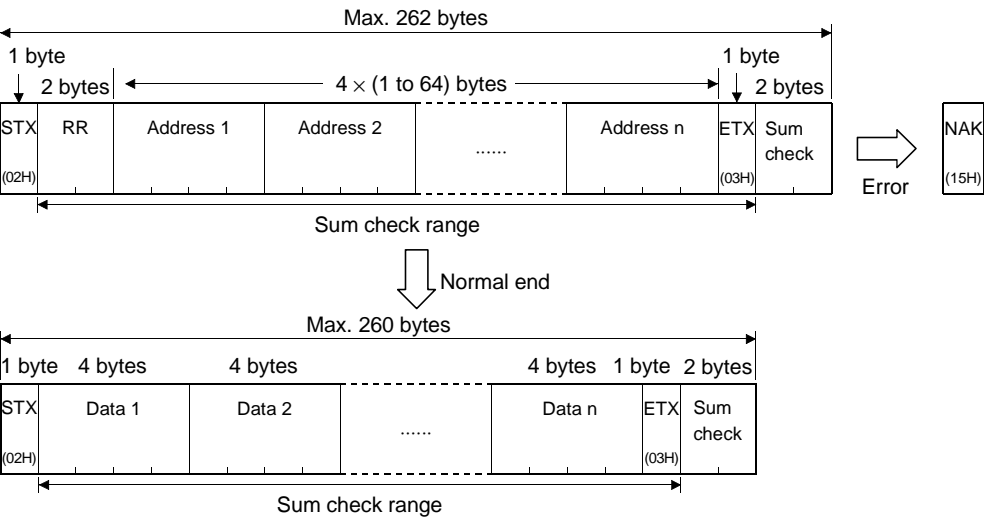


Example of use
When 64H and 65H are written in D100 to D101 of the GOT virtual device



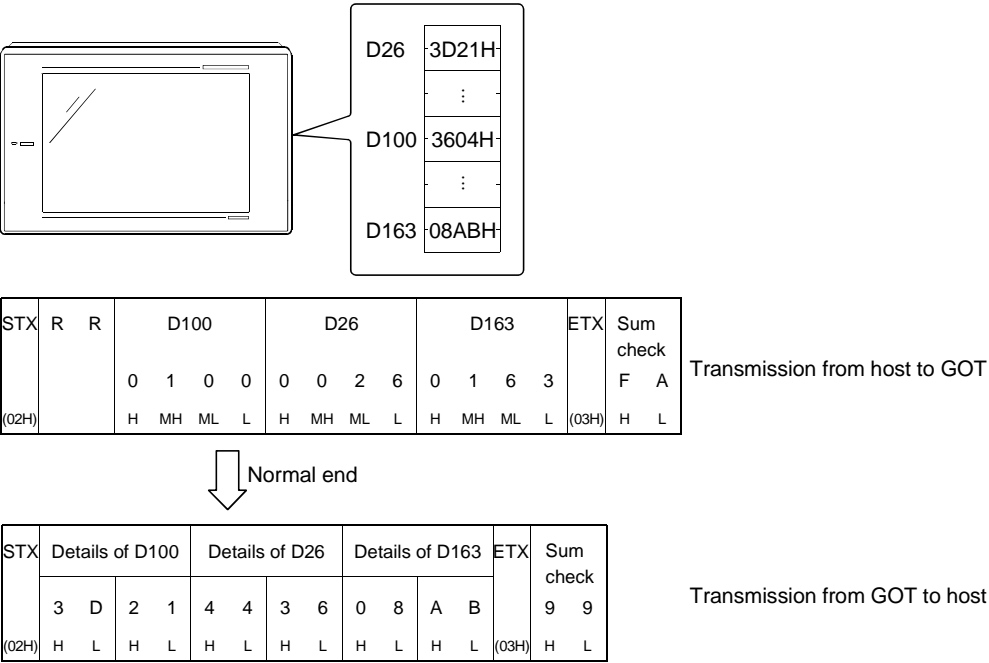
14.5.6 Random read command (RR)

Random read command details are shown below.



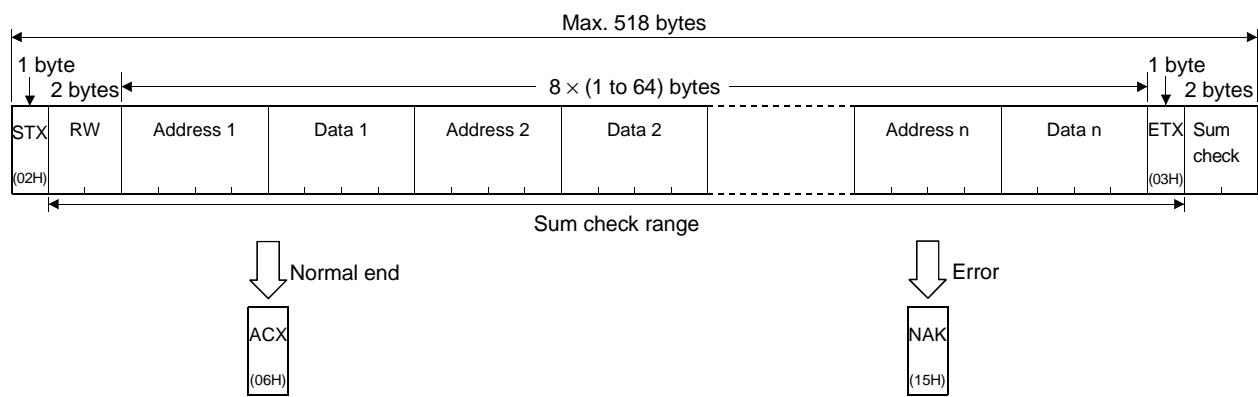
Example of use

When D100, D26 and D163 are read from the GOT virtual device



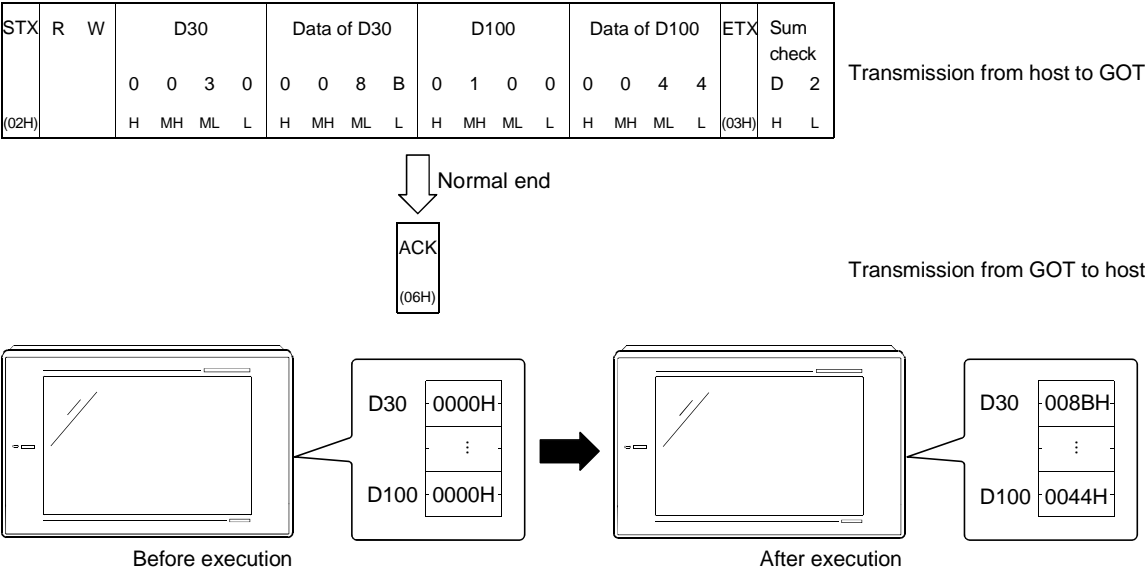
14.5.7 Random write command (RW)

Random write command details are shown below.



Example of use

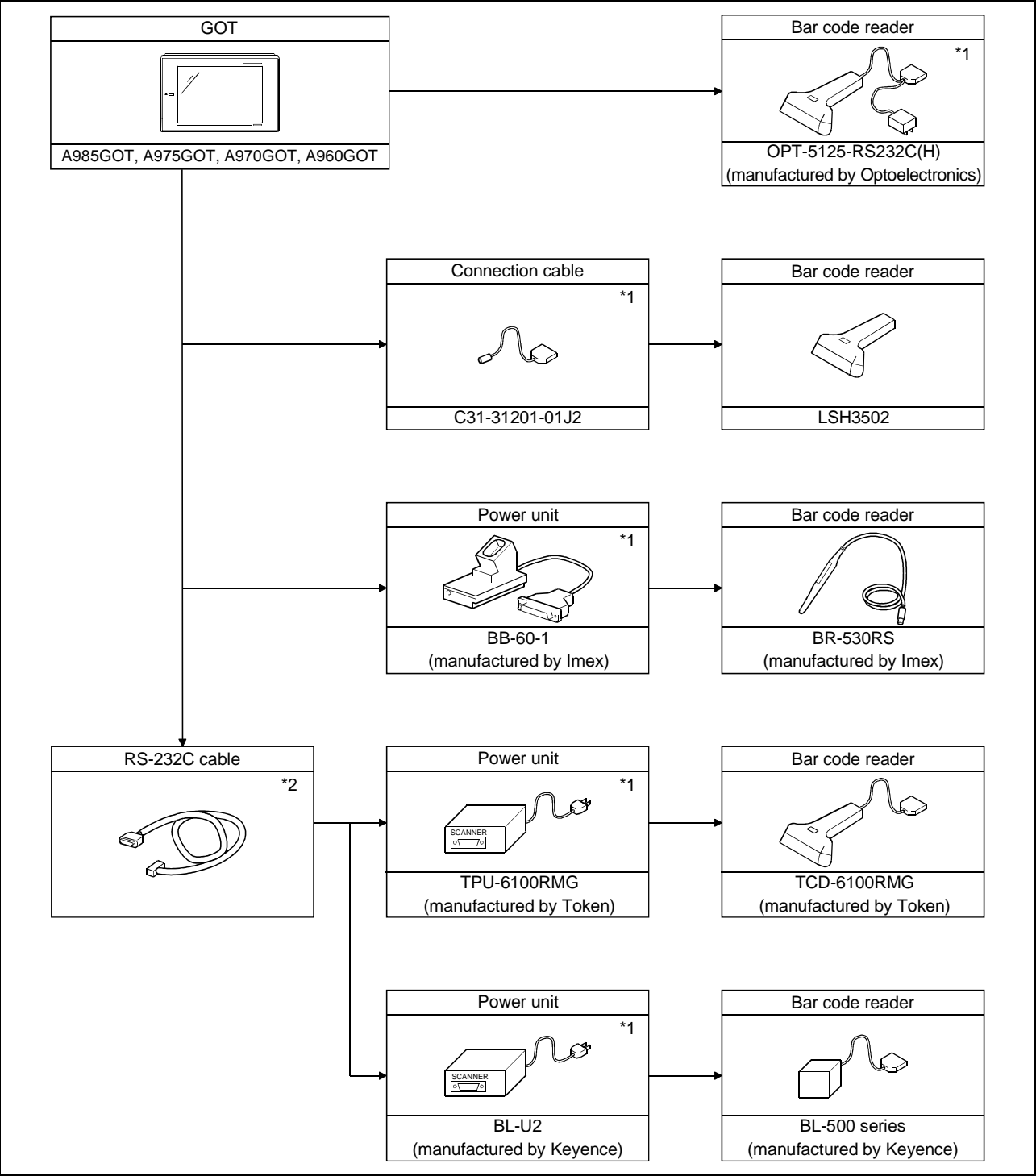
When 8BH is written into D30 and 44H is written into D100 of the GOT virtual device



Chapter15 Option devices connection

15.1 Bar code reader

15.1.1 System configuration



*1 The bar code reader requires power (DC5V) from the AC-DC adapter and the corresponding power unit.

*2 The user must prepare the RS-232C cable.

For details of preparation, refer to 15.1.3.

15.1.2 Communication setting of bar code reader

For connection to the GOT, set the following communication parameters and the port at the side of the bar code reader.

Refer to the bar code reader operation manual for details.

Setting items	Communication specification				
	Token bar code reader	Optoelectronics bar code reader	Keyence bar code reader	Imex bar code reader	OLYMPUS - symbol bar code reader
Interface	RS232C				
Transmission method		Asynchronous type		Dumb-terminal procedure CR ^{*1}	
Start bit		1	1		
Stop bit	1	1		1	1 ^{*1}
Data bit length (word length)	8	8	8 ^{*1}	8	8 ^{*1}
Parity bit	Even number	Yes, even number ^{*1}	Yes, even number	Yes, even number ^{*1}	EVEN
Parity check					No
Hardware handshake					No
Software handshake					No
Communication control method		BUSY/READY(RS/CS)	CTS/RTS ^{*1}	BUSY/READY(RS/CS)	
Baud rate	9600			9600 ^{*1}	9600
Prefix (header)	No				
Suffix (terminator)	CR				CR ^{*1}

^{*1} It is necessary to change the initial setting (default) of the bar code reader.

15.1.3 Connection cable

Cable connection diagram and connectors between the GOT and the power unit are shown below.

(Maximum cable length: Obtain the length from the manufacturer of the bar code reader.)

(1) Token's bar code reader

1) Connection diagram

Token's power unit		Cable connection and signal direction	GOT	
Signal name	Pin No.		Pin No.	Signal name
FG	1		—	—
SD(TXD)	2		2	RXD
RD(RXD)	3		3	TXD
RS(RTS)	4		4	DTR
CS(CTS)	5		5	SG
—	6		6	DSR
SG	7		7	RTS
—	—		8	CTS
DC+5V	16		—	—

2) Connectors to be used

- Connector at the GOT
Use a screw (inch screw) type connector at the GOT.
- Connector at the Token's bar code reader
Use the connector applicable to the Token's power unit.

(2) Keyence's bar code reader

1) Connection diagram

Keyence's power unit			Cable connection and signal direction	GOT	
Signal direction	Signal name	Pin No.		Pin No.	Signal name
Connected inside	SG	1		—	—
	RD(RXD)	2		2	RXD
	SD(TXD)	3		3	TXD
	ER(DTR)	4		4	DTR
	SG	5		5	SG
	DR(DSR)	6		6	DSR
	RS(RTS)	7		7	RTS
	CS(CTS)	8		8	CTS
	—	—		—	—

2) Connectors to be used

- Connector at the GOT
Use a screw (inch screw) type connector at the GOT.
- Connector at the Keyence's bar code reader
Use the connector applicable to the Keyence's power unit.

15.1.4 Recommended parts for customers and ordering method

(1) Model

Manufacturer	Model	Remark
Token	TCD-6100RMG	Bar code reader
	TPU-6100RMG	Power unit
Optoelectronics	OPT-5125-RS232C(H)	Bar code reader
Keyence	BL-500 series	Bar code reader
	BL-U2	Power unit
Imex	BR-530RS	Bar code reader
	BB-60-1	Power unit
OLYMPUS - symbol	LSH3502	Bar code reader
	C31-31201-01J2	Connection cable

(2) Order and inquiry

Orders and inquiries for the bar code reader and the power unit should be made to your shop.

15.1.5 GOT setting method

When using a bar code reader on the GOT, it is necessary to make the following setting in the drawing software.

(1) Setting storage device

Set the device (write device, device point) to store the data from the bar code reader with the bar code setting.

Refer to the help function of the drawing software for setting details.

(2) Setting system information

System information is the function to check the GOT status with the PLC CPU.

Refer to the help function of the drawing software for setting details.

POINTS
<p>If the bar code setting is made under the following conditions, the data from the bar code reader is not written.</p> <ul style="list-style-type: none"> • System information is not set. • System signal 1 • b5 (bar code input invalid) is ON. • System signal 1 • b6 (bar code input read complete) remains ON. • System signal 2 • b6 (bar code input) is ON.

15.1.6 Bar code types that can be read with GOT

The bar code specification (data transmission format) supported by the GOT is the following item only:

Data	CR
Header	End code
No	CR(0DH)

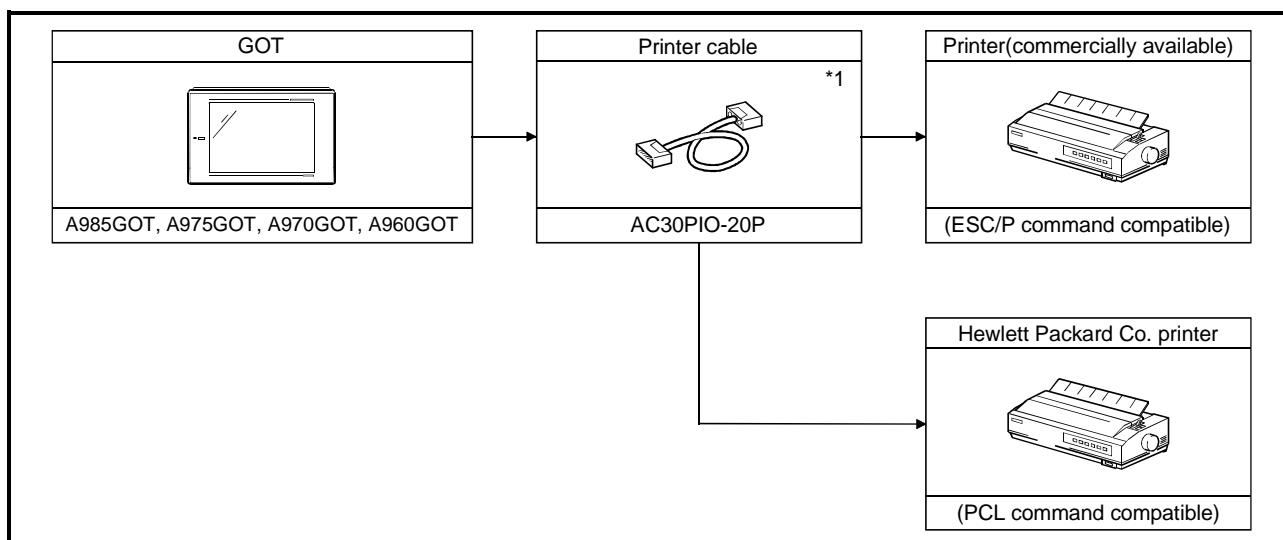
Types of bar codes checked for operation by Mitsubishi are as follows : (O : operation checked)

Bar code types	Token's bar code reader	Optoelectronics's bar code reader	Keyence's bar code reader	Imex's bar code reader	OLYMPUS- symbol's bar code reader
WPC (JAN/EAN/UPC)	○	○	○	○	○
CODE-39	○ ^{*1}	○	○	○	○
CODE-93	○			○	○
CODE-128	○		○	○	○
NW-7	○	○		○	○
2of5 (Industrial)	○	○	○	○	○
ITF				○	○

^{*1} Full ASCII is not supported.

15.2 Printer

15.2.1 System configuration



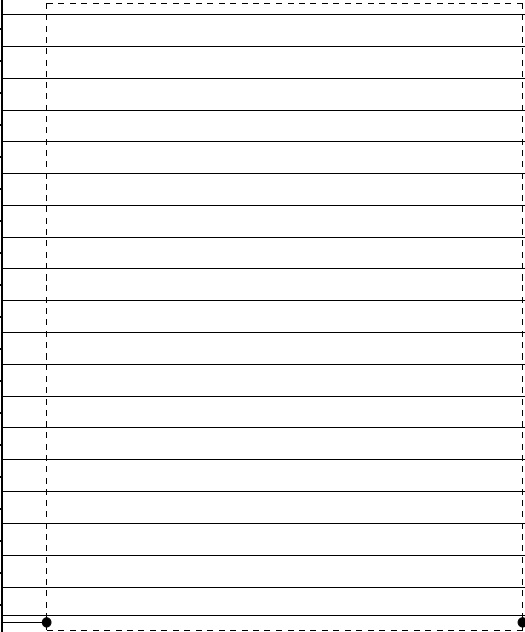
*1 A printer cable can be prepared by the user.

Refer to 15.2.2 for details of preparation.

15.2.2 Connection cable

Connection diagram and connectors of the printer cable between the GOT and the printer are shown below.

(1) Connection diagram

Printer side		Cable connection and signal direction	GOT side	
Signal name	Pin No.		Pin No.	Signal name
CHASIS GND	17		1	CHASIS GND
ACKNLG	10		2	ACKNLG
DATA6	7		3	DATA6
DATA5	6		4	DATA5
DATA4	5		5	DATA4
NC	36		6	NC
INIT	31		7	INIT
DATA1	2		8	DATA1
STROBE	1		9	STROBE
BUSY	11		10	BUSY
DATA8	9		11	DATA8
DATA7	8		12	DATA7
PE	12		13	PE
SLCT	13		14	SLCT
GND	22		15	GND
DATA3	4		16	DATA3
DATA2	3		17	DATA2
GND	24		18	GND
ERROR	32		19	ERROR
GND	19		20	GND

(2) Connector to be used

• GOT connector

Name	Model	Manufacturer
Connector cover	10320-3210-000	Sumitomo 3M Ltd.
Connector	10120-6000EL	

• Printer connector

Use the connector applicable to the printer to be used.

(3) Precautions for cable preparation

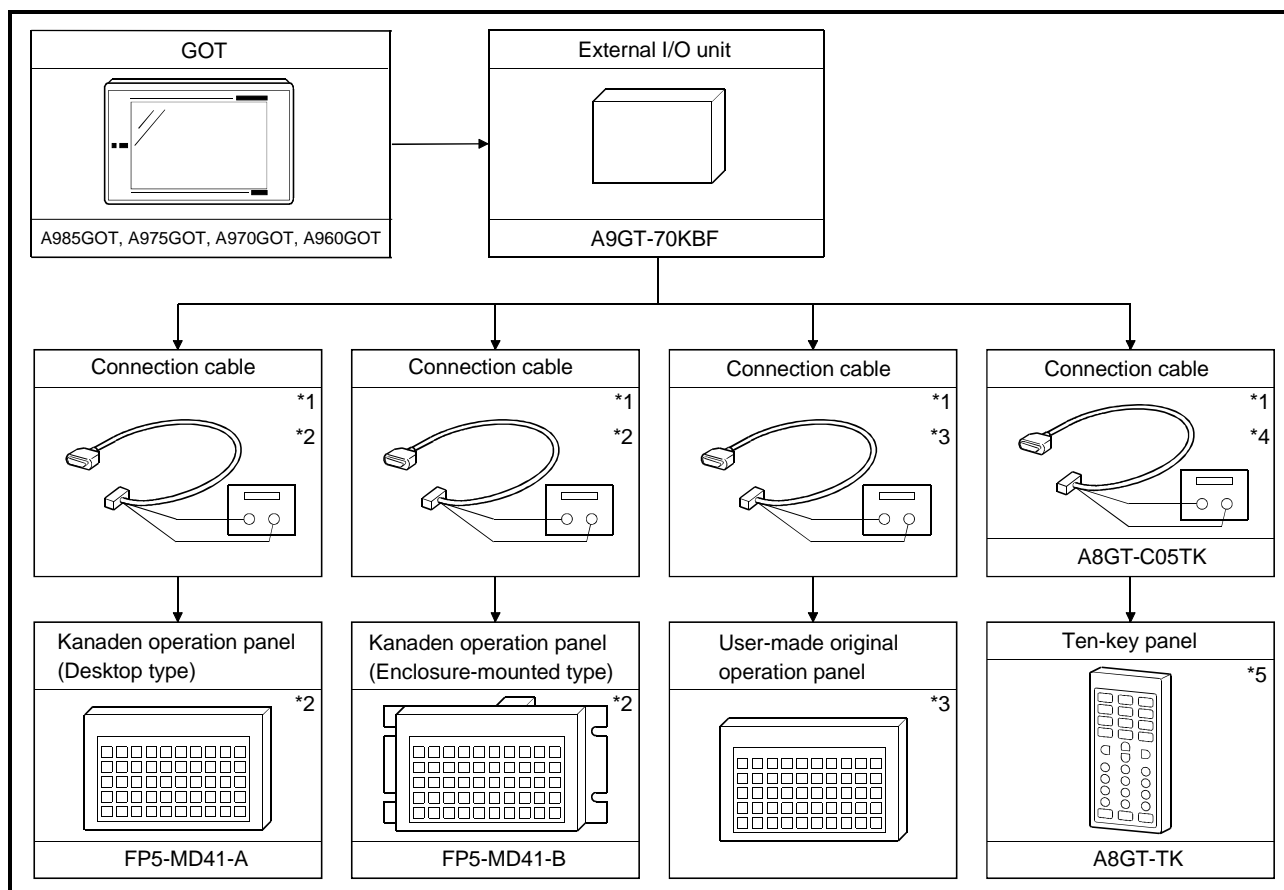
Prepare the cable of a length within 3 m (9.84 feet) or the within the specification range of the printer to be used.

15.3 External I/O equipment

15.3.1 System configuration

The system configuration differs between when the external I/O unit is used for inputs only and when it is used for inputs and outputs.

(1) Inputs only



*1 The connection cable must be supplied with 12/24VDC power for the external I/O unit.

Also, the cable used should be within 20m long.

*2 Purchase the Kanaden operation panel and connection cable from Kanaden Corp.

For details of contact, refer to Section 15.3.4.

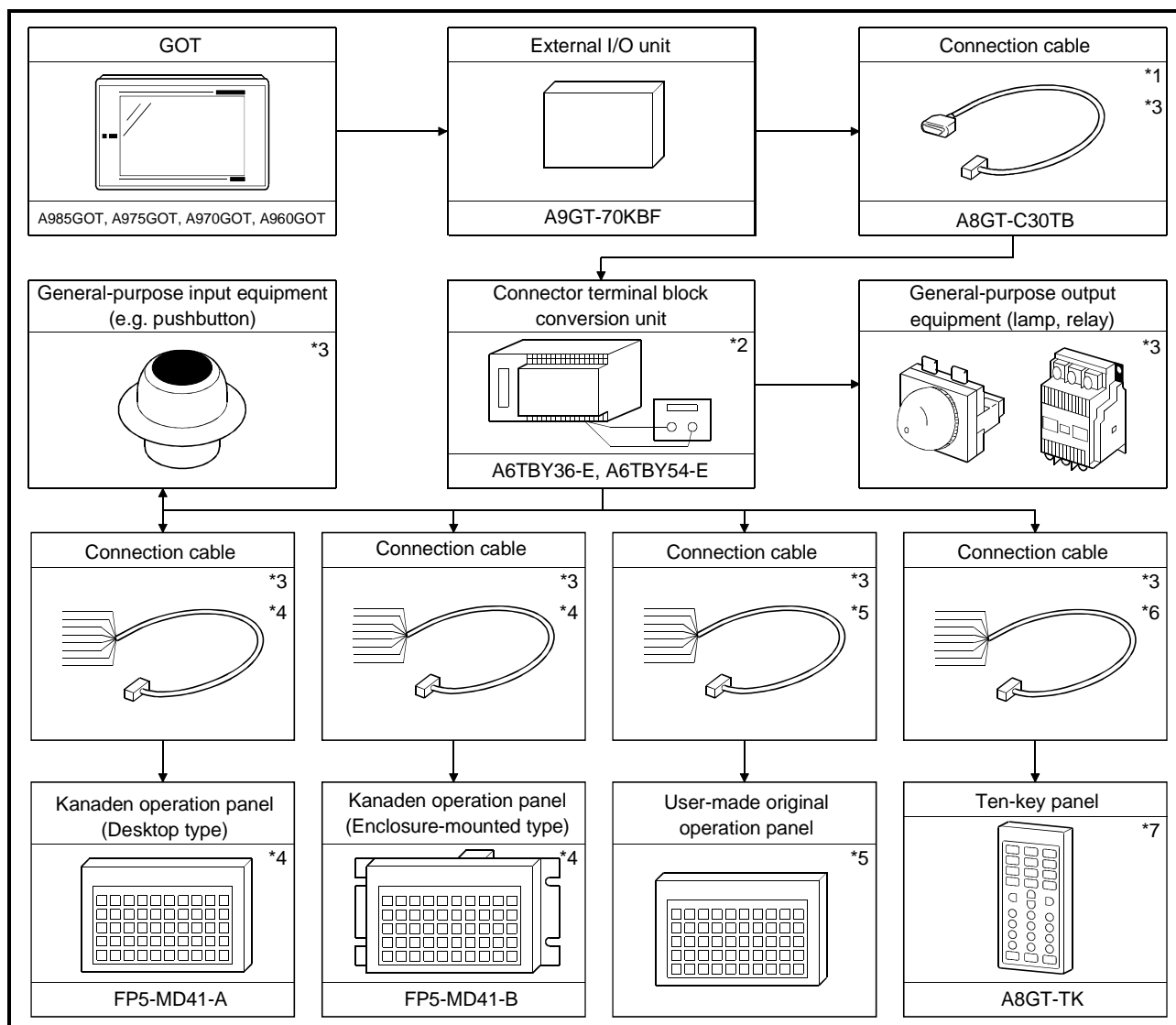
*3 Fabricate the connection cable and user-made original operation panel by referring to Section 15.3.2.

*4 The connection cable may also be fabricated by the user.

For full information on fabrication, refer to the A8GT-TK Type Ten-key Panel User's Manual.

*5 For details of the ten-key panel specifications, refer to the A8GT-TK Type Ten-key Panel User's Manual.

(2) Inputs/outputs



*1 The connection cable may also be fabricated by the user.

For full information on fabrication, refer to Section 15.3.2.

*2 The connector terminal block conversion unit must be supplied with 12/24VDC power for the external I/O unit.

*3 The cable used should be within 10m long.

*4 Purchase the Kanaden operation panel and connection cable from Kanaden Corp. For details of contact, refer to Section 15.3.4.

*5 Fabricate the connection cable and user-made original operation panel by referring to the wiring diagram in Section 15.3.3.

*6 The connection cable may also be fabricated by the user.

For full information on fabrication, refer to the A8GT-TK Type Ten-key Panel User's Manual.

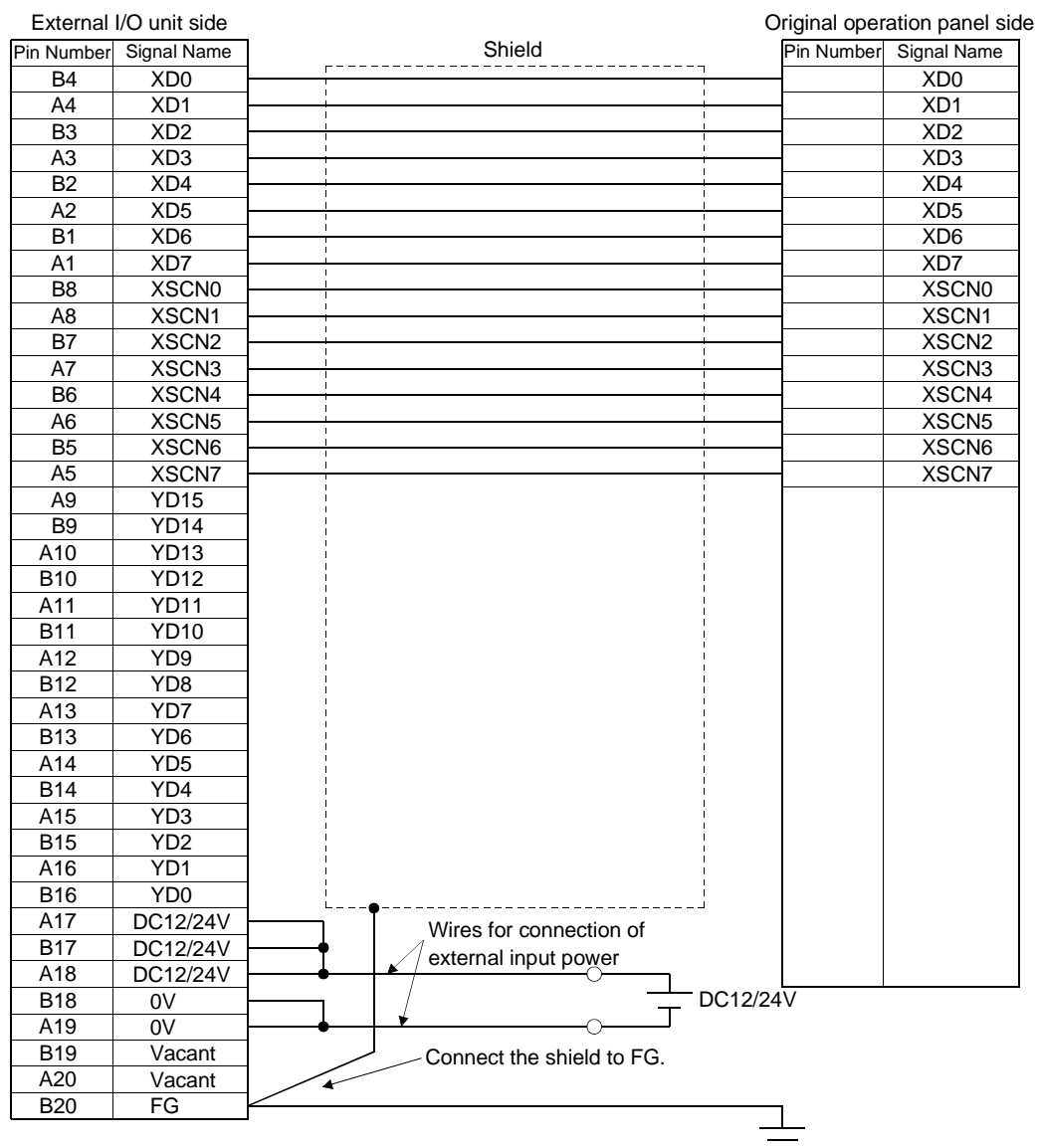
*7 For details of the ten-key panel specifications, refer to the A8GT-TK Type Ten-key Panel User's Manual.

15.3.2 Connection cables

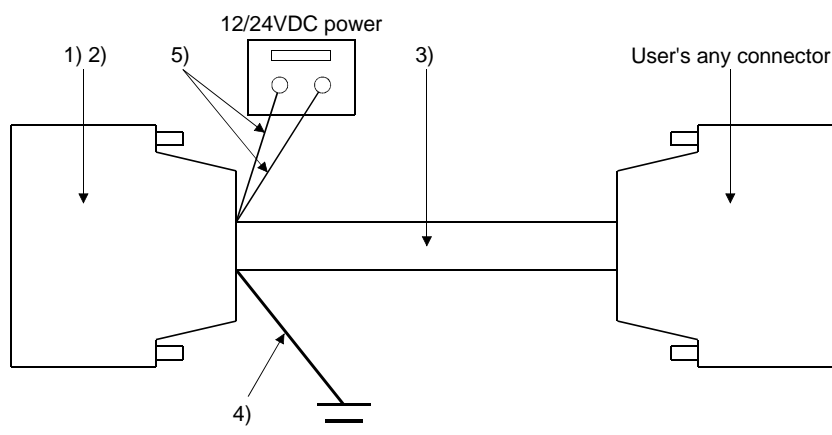
- (1) Connection cable for use between external I/O unit and user-made original operation panel

Fabricate the connection cable for use between the external I/O unit and user-made original operation panel on the user side by referring to the following.

- (a) Connection diagram



(b) Connector and connector cover used



Number	Name	Type	Maker
1) 2)	Connector (with cover)	A6CON1	Mitsubishi Electric
1)	Connector	FCN-361JO40-AU	Fujitsu
2)	Connector cover	FCN-360CO40-B	
3)	Pair shielded cable	UL 2464 AWG26 or equivalent	_____
4)	FG wire	UL 1015 AWG14 or equivalent	
5)	Wires for connection of external input power	UL 1007 AWG24 or equivalent	

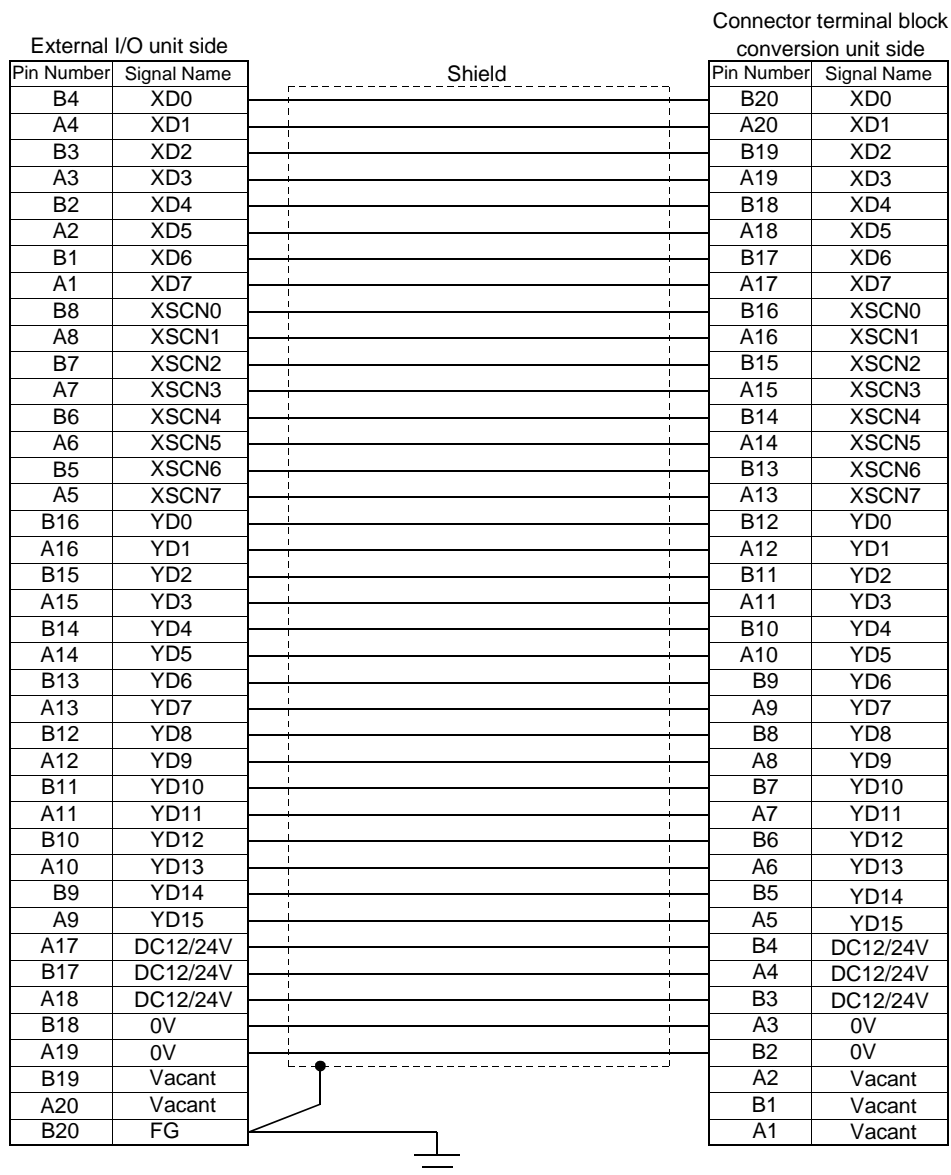
(c) Precaution for cable fabrication

The cable fabricated should be within 20m long.

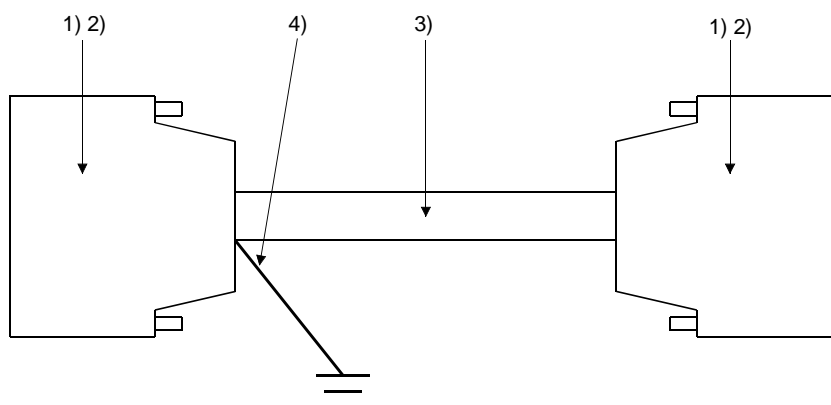
- (2) Connection cable for use between external I/O unit and connector terminal block conversion unit

Instead of using the dedicated cable (A8GT-C30TB), the user can fabricate the connection cable for use between the external I/O unit and connector terminal block conversion unit. When fabricating the connection cable, refer to the following.

- (a) Connection diagram



(b) Connectors and connector covers used



Number	Name	Type	Maker
1) 2)	Connector (with cover)	A6CON1	Mitsubishi Electric
1)	Connector	FCN-361JO40-AU	Fujitsu
2)	Connector cover	FCN-360CO40-B	
3)	Pair shielded cable	UL 2464 AWG26 or equivalent	_____
4)	FG wire	UL 1015 AWG14 or equivalent	

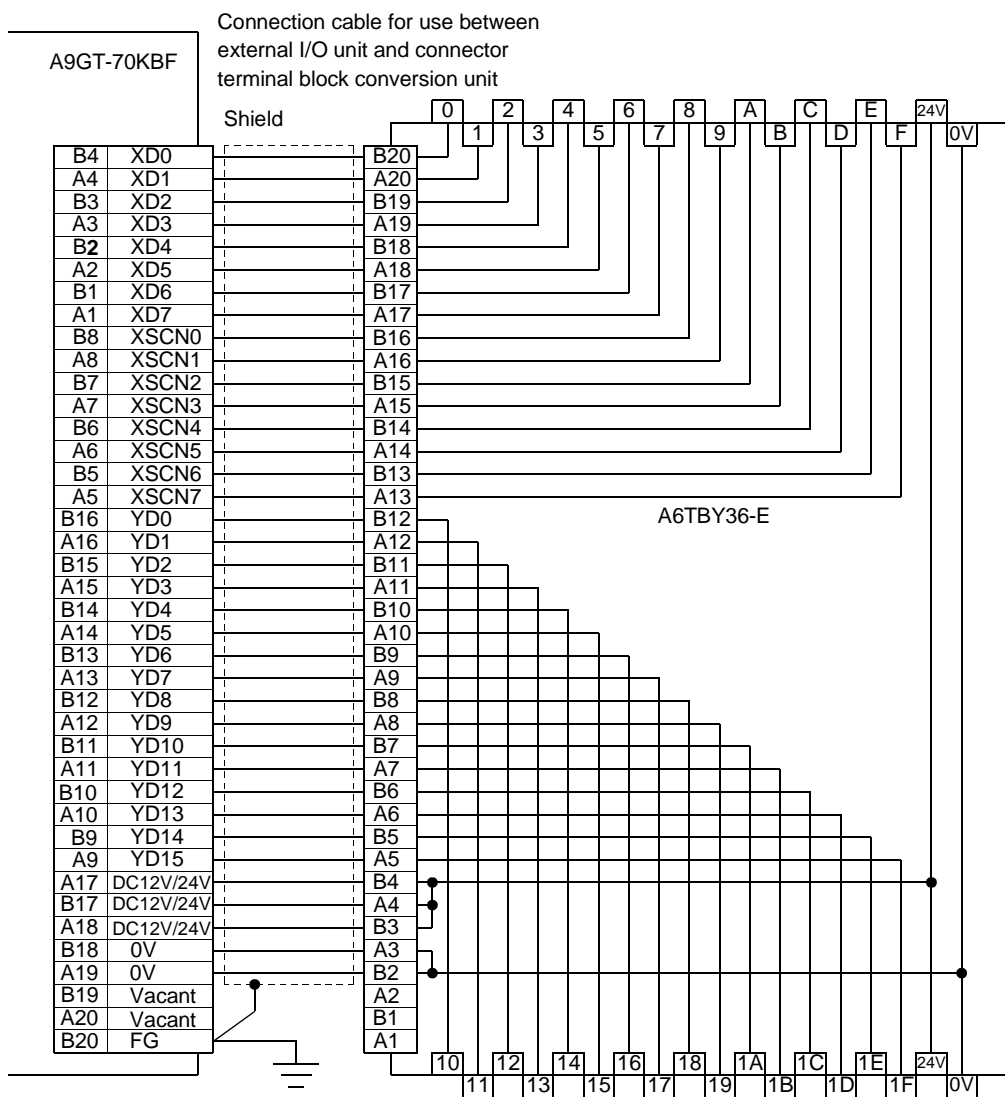
(c) Precaution for cable fabrication

The cable fabricated should be within 10m long.

15.3.3 Wiring diagrams

(1) Wiring diagram for use between external I/O unit and connector terminal block conversion unit

(a) For use of A6TBY36-E type connector terminal block conversion unit

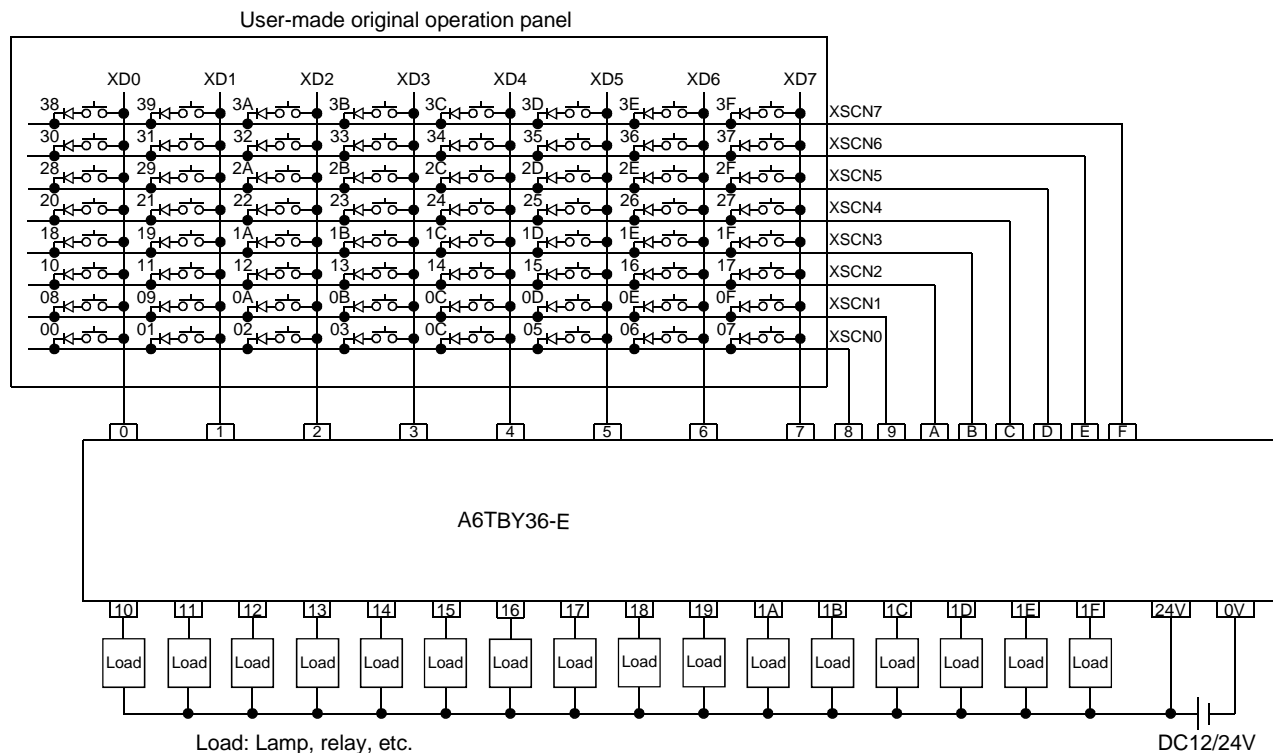


Connection cable for use between
external I/O unit and connector
terminal block conversion unit

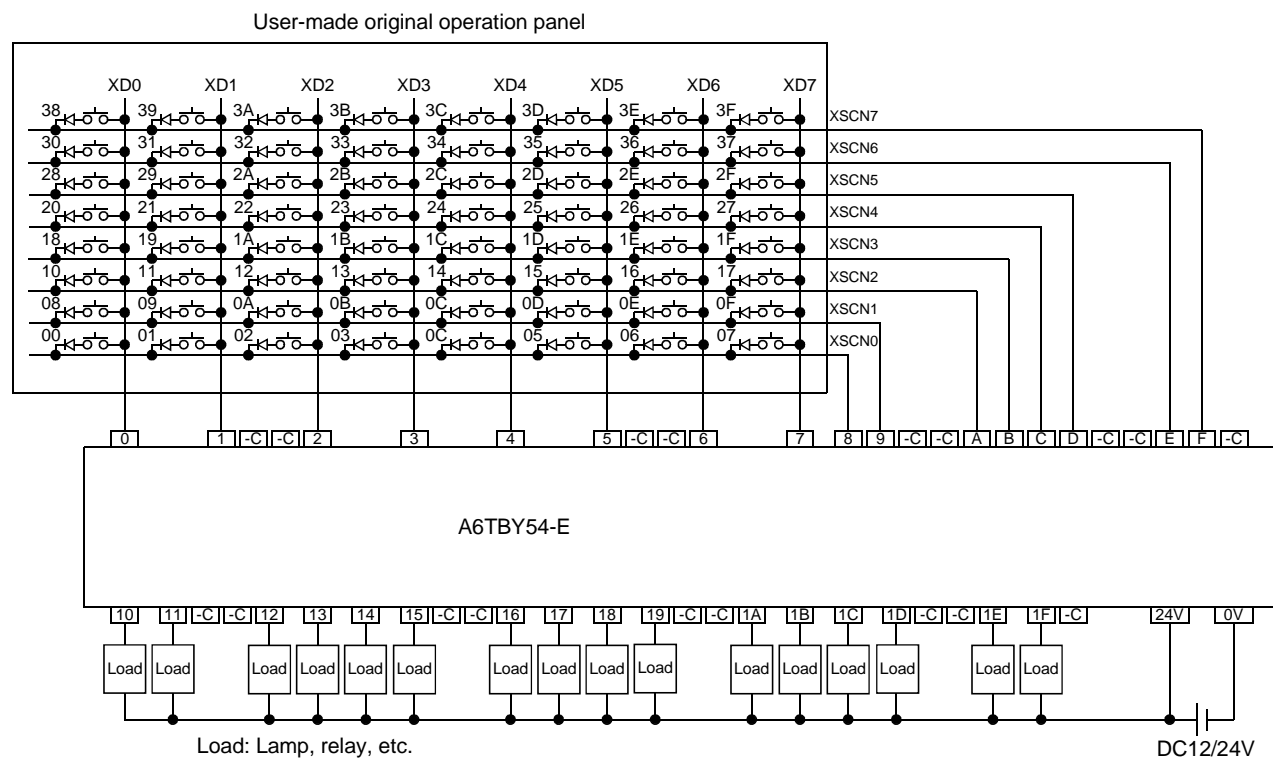


(2) Wiring diagram for use between connector terminal block conversion unit and user-made original operation panel

(a) For use of A6TBY36-E type connector terminal block conversion unit



(b) For use of A6TBY54-E type connector terminal block conversion unit



15.3.4 Recommended user-prepared articles and how to prepare them

(1) Type

Maker	Type	Remarks
Kanaden Corp.	FP5-MD41-A	Operation panel (desktop type)
	FP5-MD41-B	Operation panel (enclosure-mounted type)

(2) Order and inquiry

Orders and inquiries for the operation panel should be made to your shop.

MEMO

[illegible]

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